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ABSTRACT

This document is the answer key for level 6 of the teacher-developed experimental mathematics curriculum for New York City schools. Approximately 250 performance objectives are listed, with reference to the appropriate worksheet(s) for each. The answers are typed in the appropriate space on each sheet. (YP)

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COMPREHENSIVE INSTRUCTIONAL MANAGEMENT SYSTEM

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A Cyclical Mathematics Curriculum

Answer Key

NEW YORK CITY BOARD OF EDUCATION

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CIMS

COMPREHENSIVE INSTRUCTIONAL MANAGEMENT SYSTEM

A Cyclical Mathematics Curriculum

Answer Key

NEW YORK CITY BOARD OF EDUCATION

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It is the commitment of the Comprehensive Instructional Management System (CIMS) to develop a teacher-designed curriculum, a computer assisted assessment system, and to provide ongoing staff development that is responsive to the needs of the teachers and supervisors who are using the program.

In response to the many requests from the teachers who have been using the CIMS curriculum, we have produced an answer key document. It is our intention that the answers provided in this document will prove to be time efficient, allowing the teachers to add the time saved to planning and preparing for the delivery of mathematics instruction. We hope that you, the teachers and supervisors of the Comprehensive Instructional Management System, will find this answer key useful.

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P.O. 6.14.01.01

NAME: _____ CLASS: _____ DATE: _____

Identify the prior knowledge needed and solve each problem.

1. Harry was doing his homework. He spent 45 minutes on mathematics, 15 minutes on spelling, 40 minutes on his book report, and 20 minutes on his reading assignment. How many hours did he spend on his homework?

   Prior knowledge needed: 60 minutes = 1 hour

   Answer: 2 hours

2. Sally was planning a big dinner for Saturday night. She invited 16 people. She intends to serve 8 ounces of meat per person. How many pounds of meat will she have to purchase to serve her guests?

   Prior knowledge needed: 16 ounces = 1 pound

   Answer: 8 pounds

3. Johnny made 15 quarts of lemonade for the class party. There are 28 children at the party. How many cups of lemonade were left after each child was served 2 cups of lemonade?

   Prior knowledge needed: 4 cups = 1 quart

   Answer: 4 cups

4. Brooke's grandmother said "I am 5 decades old." What is her grandmother's age in years?

   Prior knowledge needed: 1 decade = 10 years

   Answer: 50 years of age

5. Create a problem which requires the use of prior knowledge to find the solution.

   Problems will vary.

P.O. 6.14.01.02

NAME: _____ CLASS: _____ DATE: _____

Solve the following problem.

There are forty vertical lines and twenty horizontal lines. Each horizontal line crosses each vertical line once, forming perpendicular lines. How many intersections are formed?

1. Create a problem that is similar to this one, but simpler.

Answers will vary.

2. Solve the problem you created.

Answers will vary.

3. What is the solution to the given problem?

$40 \times 20 = 800$

There are 800 intersections.

4. Explain your thinking.

Answers will vary.

P.O. 6.14.02.01-.02

NAME: _____ CLASS: _____ DATE: _____

1.A. Using the standard number 45,269,817 write the value of each digit.

4 means 40,000,000
5 means 5,000,000
2 means 200,000
6 means 60,000
9 means 9,000
8 means 800
1 means 10
7 means 7

B. Find the sum of the values written above.

45,269,817

C. Why does the sum match the standard numeral 45,269,817?

Answers will vary.

2. Write this expanded number in standard form.

30,000,000 + 4,000,000 + 600,000 + 80,000 + 5,000 + 900 + 60 + 7

34,685,967

3. Write this standard number in expanded form: 123,456,789

100,000,000 + 20,000,000 + 3,000,000 + 400,000 + 50,000 + 6000 + 700 + 80 + 9

4. How many times greater is the 4 in the hundred millions place than the 4 in the ten millions place?

440,356,071

(a) 100 million times (c) 10 times
(b) 10 million times (d) 100 times

5. Write a standard number using the following clues:

the 6 is in hundreds place
the 2 is in tens place
the 9 is in millions place
the 0 is in ones place
the 7 is in ten millions place
the 5 is in thousands place
the 4 is in hundred thousands place
the 8 is in ten thousands place

79,485,622

P.O. 6.14.02.02-.03

NAME: _____ **CLASS:** _____ **DATE:** _____

Directions: For items 1-6, mark your answers on the Answer Grid below.

1. Which is the standard numeral for 400,000,000 + 80,000,000 + 600,000 + 30,000 + 400?

   (a) 48,634 (b) 480,634,000 (c) 480,063,400 (d) 480,630,400

2. Which digit in this numeral has the greatest value?

   67,890,000

   (e) 9 (f) 6 (g) 8 (h) 7

3. 43,265,000 written in expanded form is:

   (a) 40,000 + 3000 + 200 + 60 + 5
   (b) 4 + 3 + 2 + 6 + 5
   (c) 40,000,000 + 3,000,000 + 200,000 + 60,000 + 5000
   (d) 40,000,000 + 3,000,000 + 20,000 + 6000 + 5000

4. Choose the correct statement.

   (e) 489,000,000 > 498,000,000 (g) 270,050,709 < 270,050,710
   (f) 807,632,000 < 807,623,000 (h) 199,999,999 > 200,000,000

5. Which symbol will make this statement true?

   47,138,256 ◯ 47,138,265

   (a) < (b) = (c) > (d) +

6. Which numeral will complete this statement?

   39,393,939 < _____

   (e) 39,392,940 (f) 39,294,993 (g) 39,393,849 (h) 39,393,940

ANSWER GRID

1.	(a)	(b)	(c)	●	4.	(e)	(f)	●	(h)
2.	(e)	●	(g)	(h)	5.	●	(b)	(c)	(d)
3.	(a)	(b)	●	(d)	6.	(e)	(f)	(g)	●

4

P.O. 6.14.02.04

NAME: _____ CLASS: _____ DATE: _____

I. When we write a check for a certain amount of money, the money amount must be written both as a numeral and as a verbal phrase.

Example:

CIMS SAVINGS BANK 0204

May 4 1988

Pay to the order of Texas Oil Company $ 2,450

Two thousand, four hundred fifty DOLLARS

L. M. Rich

Fill in the missing money amount (numeral) on this check:

CIMS SAVINGS BANK 0205

_____ 19__

Pay to the order of Gettum Oil Company $ 41,650,200

Forty-one million, six hundred fifty thousand, two hundred DOLLARS

L. M. Rich

Fill in the missing money amount (verbal phrase) on this check:

CIMS SAVINGS BANK 0206

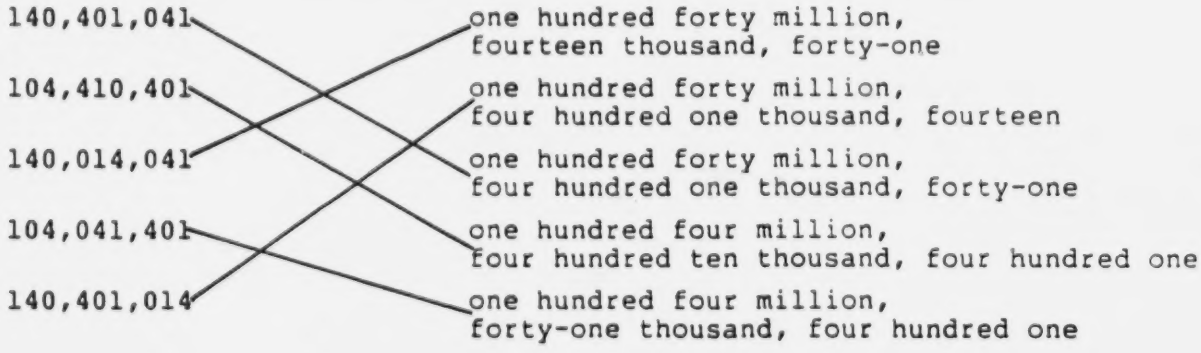
_____ 19__

Pay to the order of S.O.C. Oil Company $ 508,017,010

Five hundred eight million, seventeen thousand, ten DOLLARS

L. M. Rich

MATCH UP THE NUMERAL AND ITS VERBAL PHRASE

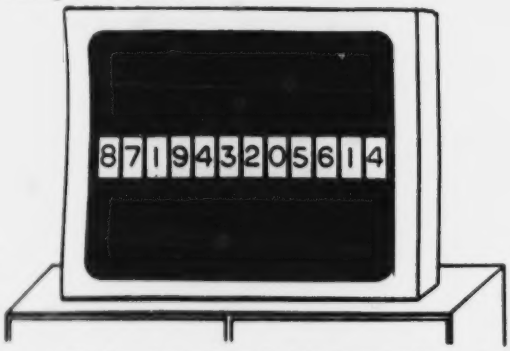

140,401,041
104,410,401
140,014,041
104,041,401
140,401,014
one hundred forty million, fourteen thousand, forty-one
one hundred forty million, four hundred one thousand, fourteen
one hundred forty million, four hundred one thousand, forty-one
one hundred four million, four hundred ten thousand, four hundred one
one hundred four million, forty-one thousand, four hundred one

P.O. 6.01.01.01-.02

NAME: _____ CLASS: _____ DATE: _____

THE HUNGRY COMPUTER

I. The student said, "Our computer had a large number of bytes because it was so hungry. On its screen are 12 places. Write the digits in their proper place value from the information below to find how many bytes the hungry computer ate?"



A. 5 in thousands place
B. 7 in ten billions place
C. 4 in ones place
D. 9 in hundred millions place
E. 0 in ten thousands place
F. 1 in tens place
G. 8 in hundred billions place
H. 3 in millions place
I. 6 in hundreds place
J. 2 in hundred thousands place
K. 1 in billions place
L. 4 in ten millions place

How many bytes did the hungry computer eat? 871,943,205,614

II. In the computer above, 12 digits are on the screen. Write this very large number in expanded form.

Start here with the digit 8. 800,000,000,000

+ 70,000,000,000 + 1,000,000,000
+ 900,000,000 + 40,000,000 + 3,000,000
+ 200,000 + 0 + 5000 + 600
+ 10 + 4

III. Write the same number in expanded form using exponential notation.

$8 \times 10^{11} + 7 \times 10^{10} + 1 \times 10^{9} + 9 \times 10^{8}$
$+ 4 \times 10^{7} + 3 \times 10^{6} + 2 \times 10^{5} + 0 \times 10^{4}$
$+ 5 \times 10^{3} + 6 \times 10^{2} + 1 \times 10^{1} + 4 \times 10^{0}$

P.O. 6.01.01.01-.03

NAME: _____ CLASS: _____ DATE: _____

Complete the following information by writing the standard numeral in expanded form.

A. 32,174,986,555 = 30,000,000,000 + 2,000,000,000

+ 100,000,000 + 70,000,000 + 4,000,000

+ 900,000 + 80,000 + 6000 + 500 + 50 + 5

B. Write the standard form for the expanded numeral.

800,000,000,000 + 60,000,000,000 + 3,000,000,000 + 700,000,000
+ 10,000,000 + 9,000,000 + 400,000 + 50,000 + 8000 + 200 + 60 + 8 =

863,719,458,268

C. Write the standard numeral for this mixed-up expanded number.

90 + 4,000,000 + 80,000,000 + 700,000 + 2 + 3000 + 900

84,703,992

D. Write the exponential form (powers of ten) for each of these numbers.

1,000 =	10^3	10,000,000 =	10^7	10 =	10^1
10,000 =	10^4	100,000 =	10^5	1 =	10^0
100,000,000,000 =	10^{11}	10,000,000,000 =	10^{10}	1,000,000 =	10^6

E. Write each exponential number in standard form.

10^5 = 100,000 10^2 = 100 10^9 = 1,000,000,000

F. Find the product. Then express each product in exponential form.

10x10 =	100	= 10^2
10x10x10 =	1000	= 10^3
10x10x10x10x10x10 =	1,000,000	= 10^6
10x10x10x10x10x10x10x10 =	100,000,000	= 10^8

P.O. 6.01.01.03-.04

NAME: _____ CLASS: _____ DATE: _____

I. Riddle: If numbers are mixed in a bowl,
And the sum of the parts is a whole,
Put the numerical clues all together,
To discover the secret of weather.

To solve the riddle, match the value for three of the digits to its numerical clue. Place the corresponding letters in the boxes below.

UAF TBI MVR CEW
899,988,989,898

9×10^{10}	8×10^{6}	9×10^{3}
A	I	R

II. Match each product with its standard number. Place the letter in the correct box to read the message.

M	$(6x10^5)$	G	700,000,000,000
A	$(9x10^8)$	N	40,000,000
T	$(1x10^3)$	H	200
H	$(2x10^2)$	M	600,000
G	$(7x10^{11})$	E	80
E	$(8x10^1)$	S	80,000,000,000
N	$(4x10^7)$	I	30,000
I	$(3x10^4)$	U	5,000,000
U	$(5x10^6)$	T	1000
S	$(8x10^{10})$	A	900,000,000

III. Which of the standard numerals names the same number as:

$(9x10^9)+(6x10^7)+(3x10^4)+(7x10^2)$

- (●) 9,060,030,700
- (B) 90,600,370,000
- (C) 9,600,300,700
- (D) 9,006,030,700

IV. Match the exponential form with the standard numeral.

(A)	10^9	100,000,000
(B)	10^1	1
(C)	10^6	1,000,000,000
(D)	10^8	10
(E)	10^0	1,000,000
(F)	10^{10}	10,000,000,000

P.O. 6.01.01.05-.06

NAME: _____ CLASS: _____ DATE: _____

This chart shows the number of shares of stock bought and sold on the CIMS Numerical Exchange during 6 months. Write the correct answer on the line provided or shade the circle next to the correct response.

CIMS Numerical Exchange

Month of Year	Bought	Sold
January	239,847,800,473	74,287,652,071
February	49,874,800,900	49,874,705,081
March	189,494,051,300	189,494,050,305
April	74,091,243,112	74,091,253,112
May	290,777,251,001	290,777,251,000
June	6,897,866,524	6,897,868,000

1. During which month were the least number of shares sold? June

2. During which month were the greatest number of shares bought? May

3. Which number sentence is true for March?
   - (a) 189,494,051,300 = 189,494,050,305
   - (b) 189,494,051,300 < 189,494,050,305
   - ● 189,494,051,300 > 189,494,050,305

4. Name the months in which more than 200 billion shares were bought.
   January and May

5. Name the months in which less than 50 billion shares were sold.
   February and June

6. Which statement is incorrect?
   - (a) In May, the number of shares bought was greater than the number of shares sold.
   - (b) In June, the number of shares bought was less than the number of shares sold.
   - ● In February, the number of shares sold was greater than the number of shares bought.

7. The short word form for 290,777,251,000 is _____.
   - (a) 290 million, 777 thousand, 251 hundred
   - ● 290 billion, 777 million, 251 thousand
   - (c) 290 billion, 777 million, 251

8. Which is the standard form for 49 billion, 874 million, 800 thousand, 900?
   - ● 49,874,800,900
   - (b) 49,874,809,000
   - (c) 49,874,890,000
   - (d) 49,874,800,009

SHARPENING YOUR SKILLS

Units 1, 2, 3

Name: _____ Class: _____ Date: _____

1. Tanya bought 6 pounds of chopped meat to make hamburgers for the barbecue she was planning. How many hamburgers, each weighing 4 ounces, can she make?

   Prior knowledge needed:
   16 ounces = 1 pound

   Answer: 24 hamburgers

2. In the numeral 260,517,300 the digit 6 is in the _____ place.

   (a) millions
   (●) ten millions
   (b) ten thousands
   (d) Not Here

3. The value of the 3 in 473,105,816 is _____.

   (e) 3 thousand
   (g) 30 million
   (●) 3 million
   (h) Not Here

4. Use the correct relation symbol, < or >, to compare each of the following:

   75,408,399 (<) 75,480,399
   265,890,111 (<) 265,896,144
   6,740,005,920 (>) 6,740,000,928
   25,098,672,666 (<) 25,098,687,244

5. Twenty-two million, seven hundred fifty-six thousand, eleven in standard form is _____.

   (a) 22,700,056
   (c) 22,756,110
   (●) 22,756,011
   (d) Not Here

6. In the numeral 35,476,921,003 the five is in the _____ place.

   (●) billions
   (g) ten billions
   (f) millions
   (h) Not Here

7. The value of the 8 in 483,127,519,600 is _____.

   (a) 80 million
   (●) 80 billion
   (b) 8 billion
   (d) Not Here

8. In which numeral below does the 7 have a value of 70,000,000,000?

   (e) 375,629,084
   (f) 729,008,612,543
   (g) 267,405,981
   (●) Not Here

9. In exponential form, 10,000,000 is written as _____.

   (●) 10^7
   (c) 10^8
   (b) 10^6
   (d) Not Here

10. 10^9 = _____

    (e) 10,000,000
    (●) 1,000,000,000
    (g) 100,000,000
    (h) Not Here

11. Write the short word name for 17,682,098,165.

    17 billion, 682 million, 98 thousand, 165

P.O. 6.01.02.01-.03

NAME: _____ **CLASS:** _____ **DATE:** _____

I. Round the following numbers to the nearest ten thousand.

1 846,000	850,000	6. 987,654	990,000
2. 347,960	350,000	7. 200,364	200,000
3. 451,789	450,000	8. 101,000	100,000
4. 999,999	1,000,000	9. 4,983,213	4,980,000
5. 708,234	710,000	10. 7,100,001	7,100,000

II. Round the following numbers to the nearest hundred thousand.

1. 189,245,000	189,200,000	6. 812,240	800,000
2. 789,000	800,000	7. 987,654,321	987,700,000
3. 66,666,666	66,700,000	8. 9,999,000	10,000,000
4. 109,109,109	109,100,000	9. 96,842	100,000
5. 8,372,814	8,400,000	10. 100,560	100,000

III. Use the table to answer the following questions.

Circulations of Leading Magazines June-December, 1984	
Better Homes and Gardens	8,058,839
Family Circle	6,920,333
National Geographic	10,392,548
Reader's Digest	17,866,798
TV Guide	17,115,233
Woman's Day	6,517,684

1. When rounded to the nearest ten thousand, which magazine has a circulation of 6,520,000? Woman's Day
2. What is the circulation of National Geographic, to the nearest hundred thousand? 10,400,000
3. When rounded to the nearest hundred thousand, which magazine has a circulation of 17,100,000? TV Guide

P.O. 6.02.01.01-.03

NAME: _____ CLASS: _____ DATE: _____

A. Estimate by rounding to the nearest hundred thousand. Then, find the actual sum.

1.

6,288,049	→	6,300,000
+ 135,296	→	100,000
6,423,345	→	6,400,000
actual sum		estimated sum

2.

9,405,313	→	9,400,000
+ 197,639	→	200,000
9,602,952	→	9,600,000
actual sum		estimated sum

B. Estimate by rounding to the nearest ten thousand. Then, find the actual sum.

3.

42,168	→	40,000
956,215	→	960,000
83,839	→	80,000
1,082,222	→	1,080,000
actual sum		estimated sum

4.

249,094	→	250,000
68,467	→	70,000
998,743	→	1,000,000
1,316,304	→	1,320,000
actual sum		estimated sum

C. Solve each of the following. Check by adding up, changing the order of the addends, or finding groups that add to ten.

5. During a six month period ending September 30, 1986, the New York Daily News circulated 1,270,926 newspapers daily. The New York Times circulated 1,001,694 newspapers and the New York Post circulated 731,668 newspapers. What was the total daily circulation for the three newspapers?

Estimate

Solve

3,004,288 papers

6. Howard's older brother worked during summer vacation. During the month of June, he earned $411.15. In July he earned $1603.45 and in August he earned $902.90. What were his total earnings during summer vacation?

Estimate

Solve

$ 2917.50

P.O. 6.03.01.01-.02

NAME: _____ CLASS: _____ DATE: _____

I. Use the data found in this table to answer questions 1-5.

Distances from the Sunstar in the Chocvan Planetary System	
Planet	Miles from Sunstar
Strawnilla	432,578
Rasolate	751,062
Fudgina	294,611
Ribbleberry	87,293
Heavenly	346,755

1. How much farther from the Sunstar is Rasolate than Fudgina?
456,451 miles

2. Heavenly is how much closer to Sunstar than Strawnilla?
85,823 miles

3. Approximately how much farther from Sunstar is Strawnilla than Fudgina?
100,000 miles

4. What is the exact difference in miles between the farthest planet from Sunstar and the closest planet to Sunstar?
663,769 miles

5. Which two planets are each about 300,000 miles from Sunstar?
Heavenly and Fudgina

II. Solve each problem by:
A) rounding to estimate.
B) finding the actual difference.
C) checking by adding up.

1. 684,973 − 96,273

(A) estimate

Estimates may vary.

(B) subtract

588,700

(C) check

2. 415,219 − 343,790

(A) estimate

Estimates may vary.

(B) subtract

71,429

(C) check

III. Round 473,275 and 42,705 to the nearest ten thousand and find the estimated difference.

470,000
− 40,000
430,000

P.O. 6.03.01.03

NAME: _____ CLASS: _____ DATE: _____

MIXED PROBLEM SOLVING

1. A four-engine plane weighs 775,416 pounds. How much greater is its weight than a two-engine plane that weighs 214,387 pounds?

   561,029 pounds

2. On Monday, the Coblenz Courier sold 317,538 newspapers. On that same day, the Wilson Gazette sold 458,997 newspapers. How many newspapers were sold on Monday?

   776,535 newspapers

3. The 6th grade students of the Woodside School collected 8400 aluminum cans for recycling. If each student collected 80 cans, how many students are there in the 6th grade?

   105 students

4. Rocky Star earned $264,220 doing concerts during the year. Tom Singer earned $641,560 during the same year. What is the difference in their earnings?

   $377,340

5. By January, the Woodside School had collected 352,425 cans. How many more cans must be collected to reach its goal of 700,000 cans?

   347,575 cans

6. Saul drove 475 miles each week making deliveries. During the year he worked 48 weeks. How many more miles did he drive this year than last year when he drove only 19,350 miles?

   3450 miles

7. Create your own problem using subtraction of 6-digit numerals.

   Problems will vary.

SHARPENING YOUR SKILLS

Units 4, 5, 6

Name: _____ **Class:** _____ **Date:** _____

1. Round each of the following to the nearest ten thousand.

386,920 rounds to 390,000
1,609,265 rounds to 1,610,000
7,233,824 rounds to 7,230,000

2. Round each of the following to the nearest hundred thousand.

295,865 rounds to 300,000
4,806,291 rounds to 4,800,000
3,754,003 rounds to 3,800,000

3. Which of the following would round to 680,000 when rounded to the nearest ten thousand?

(a) 685,297 (●) 681,269
(b) 674,865 (d) Not Here

4.
$$\begin{array}{r} 275,416 \\ 86,904 \\ +315,649 \\ \hline \end{array}$$

(e) 676,969 (●) 677,969
(f) 667,969 (h) Not Here

5.
$$\begin{array}{r} 175,488 \\ 216,911 \\ 45,623 \\ 6,195 \\ +104,263 \\ \hline \end{array}$$

(a) 558,480 (●) 548,480
(b) 448,480 (d) Not Here

6.
$$\begin{array}{r} \$2749.85 \\ -\ 165.99 \\ \hline \end{array}$$

(●) $2583.86 (g) $2684.86
(f) $2584.96 (h) Not Here

7.
$$\begin{array}{r} 700,931 \\ -\ 8,744 \\ \hline \end{array}$$

(a) 791,287 (●) 692,187
(b) 681,187 (d) Not Here

8. On Friday, 284,154 cars drove across the Manhattan Bridge. On Saturday, 69,788 cars drove across. How many more cars drove across the bridge on Friday than on Saturday?

214,366 cars

9. Ms. Denton, a salesperson for the Bradley Corporation, earned $2460.08 in May and $2157.94 in June. How much did she earn during the two months.

$4618.02

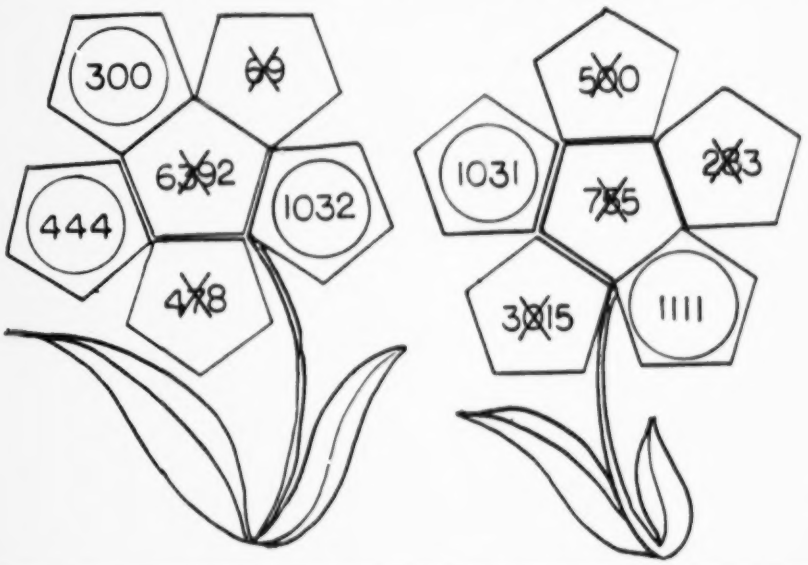
10. Mr. Meyers wants to buy a car that costs $9875.90. He has saved $2699.89. How much more does he need to buy the car?

$7176.01

P.O. 6.01.03.01-.03

NAME: _____ CLASS: _____ DATE: _____

I. Circle the petals that could be base five numerals.
Place an X on the petals that cannot be base five numerals.



II. Complete the base five place value chart. Place each base five numeral in the correct place on the chart.

a. 320_{five}
b. 1032_{five}
c. 441_{five}

	one hundred twenty-fives	twenty-fives	fives	ones
	5^3	5^2	5^1	5^0
a		3	2	0
b	1	0	3	2
c		4	4	1

III. Complete the expanded notation using exponents in base five. Find the base ten equivalents of the base five numerals.

a. $320_{five} = (3 \times 5^2) + (2 \times 5^1) + (0 \times 5^0) = 85_{ten}$

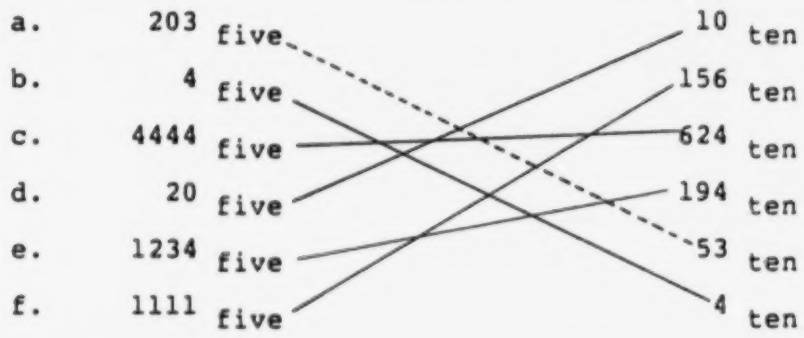
b. $1032_{five} = (1 \times 5^3) + (0 \times 5^2) + (3 \times 5^1) + (2 \times 5^0) = 142_{ten}$

c. $441_{five} = (4 \times 5^2) + (4 \times 5^1) + (1 \times 5^0) = 121_{ten}$

P.O. 6.01.03.03-.04

NAME: _____ CLASS: _____ DATE: _____

I. Match each base five numeral with its base ten equivalent.



II. Find the base five equivalent for the following base ten numerals. Use the base five place value chart to help you.

a. 85_{ten} = 320 five

b. 20_{ten} = 40 five

c. 438_{ten} = 3223 five

d. 76_{ten} = 301 five

one hundred twenty-fives	twenty-fives	fives	ones
5^3	5^2	5^1	5^0
	3	2	0
		4	0
3	2	2	3
	3	0	1

CHALLENGE!

Develop a place value chart for base eight through four places.

Base Eight Place Value Chart

five hundred twelves	sixty-fours	eights	ones
8^3	8^2	8^1	8^0

P.O. 6.01.04.01-.02

NAME: _____ CLASS: _____ DATE: _____

I. Complete the base two place value chart. Place the base two numerals in the correct places on the chart.

		sixty-fours	thirty-twos	sixteens	eights	fours	twos	ones
		2^6	2^5	2^4	2^3	2^2	2^1	2^0
a. 11010_{two}	a.			1	1	0	1	0
b. 100111_{two}	b.		1	0	0	1	1	1
c. 1010101_{two}	c.	1	0	1	0	1	0	1
d. 11111_{two}	d.			1	1	1	1	1

II. Express each base two numeral using exponents.

a. $11010_{two} = (1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (0 \times 2^0)$

b. $100111_{two} = (1 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$

c. $1010101_{two} = (1 \times 2^6) + (0 \times 2^5) + (1 \times 2^4) + (0 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$

d. $11111_{two} = (1 \times 2^4) + (1 \times 2^3) + (1 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$

III. Express each base two numeral as its base ten equivalent.

a. $11010_{two} =$ 26 $_{ten}$

b. $100111_{two} =$ 39 $_{ten}$

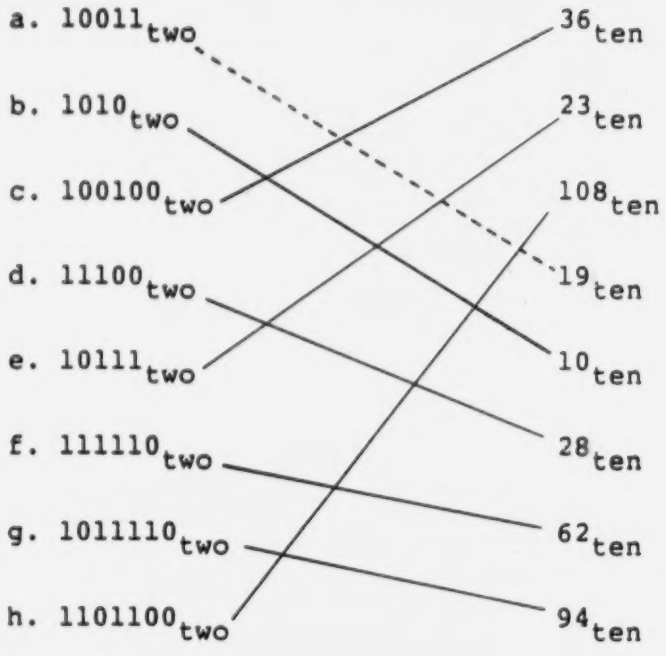
c. $1010101_{two} =$ 85 $_{ten}$

d. $11111_{two} =$ 31 $_{ten}$

P.O. 6.01.04.02-.03

NAME: _____ CLASS: _____ DATE: _____

I. Match each base two numeral with its base ten equivalent.



II. Express the following base ten numerals as base two equivalents.

a. 49_{ten} = 110001 $_{two}$

b. 72_{ten} = 1001000 $_{two}$

c. 96_{ten} = 1100000 $_{two}$

d. 33_{ten} = 100001 $_{two}$

e. 58_{ten} = 111010 $_{two}$

f. 89_{ten} = 1011001 $_{two}$

g. 101_{ten} = 1100101 $_{two}$

h. 66_{ten} = 1000010 $_{two}$

Do you remember?

1 yard = 36 inches

1 foot = 12 inches

1 yard = 3 feet

1 pound = 16 ounces

1 quart = 2 pints

1 gallon = 4 quarts

P.O. 6.14.03.01

Answers will vary.

NAME: _____ CLASS: _____ DATE: _____

Measure the items indicated on the worksheet. Some of the measurements can be completed in class. Others must be completed at home or in the school yard. Give your answer to the nearest inch, foot, or yard.

Object/Distance To Be Measured	Unit of Measure	Estimate	Actual Measurement	Difference Between Estimate and Actual Measure
1. The distance from your classroom to the nearest exit				
2. A pencil				
3. The length of the chalkledge				
4. The height of the classroom door				
5. The distance across the classroom on a diagonal				
6. The width of your handspan				
7. The width of your refrigerator				
8. The length of your room				
9. The length of your kitchen table				
10. The length of the schoolyard or gym				

*THINK: What are two different strategies you could use to measure the schoolyard or the gym?

1 _____

2 _____

P.O. 6.14.03.02

NAME: _____ CLASS: _____ DATE: _____

Here are activities for you to complete at school and at home.

A. Use a cup, pint, quart, and gallon container to find the equivalent measures.

3 pints = 6 cups
1 quart = 2 pints
1 quart = 4 cups
1 gallon = 8 pints
4 quarts = 8 pints
4 quarts = 1 gallon

B. Find five items at home which are sold in units of cups, quarts, and gallons.

Answers will vary.

1. Apple juice is sold in a quart bottle.
2. _____
3. _____
4. _____
5. _____

C. Pretend you are planning to sell these items but you want to change the size of the container. List the items and the new size and tell why you would make the change.

	Item	Old Size	New Size	Reason
1.	apple juice	1 quart	8 ounce	easier to carry as a snack
2.				
3.		Answers will vary.		
4.				
5.				

D. **Class Project** **Answers will vary.**

1. Collect 3 different containers used for milk. How much does each one hold? _____
2. Collect 3 different containers used for soda. How much does each one hold? _____
3. Collect 3 different containers used for juice. How much does each one hold? _____

P.O. 6.14.03.03

Answers will vary.

NAME: _____ CLASS: _____ DATE: _____

Here are some activities for you to complete at home and at school.

I. Complete this activity in school.

A. Use ounce and pound weights on a balance scale to weigh five different objects. Make a (✓) to indicate the unit being used.

	Object to be Weighed	Unit oz	Unit lb	Estimate	Actual Weight	Difference
1.						
2.						
3.						
4.						
5.						

II. Complete these activities at home.

A. Record and list from lightest to heaviest, the weights of five different food items.

1. _____
2. _____
3. _____
4. _____
5. _____

B. List five supermarket items that are sold by the ounce. List their weights two different ways.

a. _____
b. _____
c. _____
d. _____
e. _____

C. List five items sold by the pound. List their weights two different ways.

a. _____
b. _____
c. _____
d. _____
e. _____

SHARPENING YOUR SKILLS

Units 7, 8, 9

Name: _____ **Class:** _____ **Date:** _____

1. 23_{five} = _____

   (a) $(2x5^1)+(3x5^0)$ (c) $(3x5^1)+(2x5^0)$

   (b) $(2x5^2)+(3x5^1)$ (d) Not Here

2. 103_{five} = _____

   (e) 33_{ten} (g) 28_{ten}

   (f) 13_{ten} (h) Not Here

3. 37_{ten} = _____

   (a) 135_{five} (c) 132_{five}

   (b) 122_{five} (d) Not Here

4. 1011_{two} = _____

   (e) 111_{ten} (g) 21_{ten}

   (f) 13_{ten} (h) Not Here

5. 10001_{two} = _____

   (a) 33_{ten} (c) 17_{ten}

   (b) 9_{ten} (d) Not Here

6. 35_{ten} = _____

   (e) 10010_{two} (g) 11001_{two}

   (f) 10011_{two} (h) Not Here

7. The width of this page is about _____.

   (a) 5 in. (c) 1 ft

   (b) 8 in. (d) Not Here

8. A full kitchen sink will hold _____ of water.

   (e) less than 1 gal (g) less than 1 qt

   (f) more than 3 gal (h) Not Here

9. The classroom door is about _____ high.

   (a) 2 ft (c) 36 in.

   (b) 2 yd (d) Not Here

10. A newborn baby would probably weigh _____.

    (e) more than 15 lb (g) less than 10 lb

    (f) less than 2 lb (h) Not Here

Answer Grid

1.	●	b	c	d
2.	e	f	●	h
3.	a	●	c	d
4.	e	f	g	●
5.	a	b	●	d
6.	e	f	g	●
7.	a	●	c	d
8.	e	●	g	h
9.	a	●	c	d
10.	e	f	●	h

P.O. 6.10.01.01&.03

NAME: _____ CLASS: _____ DATE: _____

I. Complete.

$\frac{1}{4}$ lb = 4 oz

$\frac{1}{2}$ lb = 8 oz

$\frac{3}{4}$ lb = 12 oz

$\frac{1}{4}$ T = 500 lb

$\frac{1}{2}$ T = 1000 lb

$\frac{3}{4}$ T = 1500 lb

II. Say it another way.

1. Ricky bought $\frac{3}{4}$ lb of cheese at the grocery store. Ricky bought 12 ounces of cheese.

2. Marcy bought a 1 pound bag of raisins. She ate $\frac{1}{4}$ pound of raisins. Marcy ate 4 ounces of raisins.

III. Create and solve a problem using the information given.

1. Storage Bin A has $\frac{3}{4}$ T of grain.
2. Storage Bin B has $\frac{1}{2}$ T of grain.
3. Storage Bin C has $\frac{1}{4}$ T of grain.

Answers will vary.

Do you remember?

Round the following to the nearest ten thousand.

1. 127,562 rounds to 130,000
2. 61,080 rounds to 60,000
3. 296,230 rounds to 300,000
4. 87,615 rounds to 90,000

P.O. 6.10.01.02-.03

NAME: _____ CLASS: _____ DATE: _____

I. **Complete.**

$\frac{1}{3}$ ft = 4 in. $\frac{1}{3}$ yd = 1 ft $\frac{1}{2}$ yd = 18 in.

$\frac{1}{2}$ ft = 6 in. $\frac{2}{3}$ yd = 2 ft $\frac{2}{3}$ yd = 24 in.

II. **Solve.**

1. Which is longer, a piece of wood $\frac{5}{6}$ yard long or a piece of wood $\frac{2}{3}$ yard long?

   $\frac{5}{6}$ yard

2. Julio has a chain of paper clips $\frac{1}{3}$ yard long. His brother has a chain of paper clips $\frac{1}{2}$ yard long. Whose chain of paper clips is longer?

   Julio's brother's chain is longer.

III. **Create and solve a problem using the information given.**

Mickey has a stack of paper plates $\frac{3}{4}$ ft in height. His sister has a stack of paper plates $\frac{5}{6}$ ft in height. _____

Answers will vary.

Do you remember?

Round the following numbers to the nearest hundred thousand. Place < or > in the circles provided to make a true statement.

	Number		Rounded Number		Number		Rounded Number
1.	3,654,123	<	3,700,000	4.	987,654	<	1,000,000
2.	451,789	<	500,000	5.	200,264	>	200,000
3.	708,234	>	700,000	6.	8,569,432	<	8,600,000

P.O. 6.10.02.01-.02&.04

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

A. Complete the time relationships.

a. 85 min = 1 hr 25 min

b. 75 sec = 1 min 15 sec

c. 32 hr = 1 day 8 hr

d. 24 mo = 2 yr

e. 42 days = 6 weeks

B. Write >, <, or = to make each statement true.

a. 6 weeks (=) 42 days

b. 2 years (<) 36 months

c. 18 months (<) 4 years

d. 180 seconds (<) 3 hours

e. 24 hours (=) 1440 minutes

f 2 min 30 sec (=) 150 seconds

C. Television commercials can be 30 seconds long or 60 seconds long. If there are 6 one-minute commercials and 8 thirty-second commercials during the cartoon program, how much time is spent watching the commercials?

Commercial time = 600 seconds or 10 minutes

D. What part of...

a. a year is 6 months? $\frac{1}{2}$ yr

b. a year is 9 months? $\frac{3}{4}$ yr

c. a year is 3 months? $\frac{1}{4}$ yr

d. a day is 6 hours? $\frac{1}{4}$ day

e. a minute is 45 seconds? $\frac{3}{4}$ min

f. an hour is 15 minutes? $\frac{1}{4}$ hr

P.O. 6.10.02.01-.04

NAME: _____ **CLASS:** _____ **DATE:** _____

Follow the directions.

A. Complete the time relationships.

a. 36 months = 3 years

b. 6 months = $\frac{1}{2}$ year

c. 3 months = $\frac{1}{4}$ year

d. 2 decades = 20 years

e. 1 century = 100 years

B. Can you imagine? Write about your future in the next century (2000 and beyond).

Answers will vary.

In the year 2000, I will be _____ years _____ months old.

I plan _____

_____

_____

C. Connie has a vacation home away from New York City. She spends $\frac{3}{4}$ of the year in New York City and $\frac{1}{4}$ of the year at her vacation home.

How many months does she spend in New York City? 9 months

How many months does she spend at her vacation home? 3 months

About how many days does she spend at her vacation home? 90 days

About how many days does she spend in New York City? 275 days

D. Use fractions to complete each statement.

a. 6 months = $\frac{1}{2}$ year

b. 3 months = $\frac{1}{4}$ year

c. 10 months = $\frac{5}{6}$ year

d. 9 months = $\frac{3}{4}$ year

CHALLENGE!

The U.S. Military uses a 24 hour clock in telling time. Two o'clock in the morning is expressed as 0200 hours. Two o'clock in the afternoon is expressed as 1400 hours. How would you express 7:45 in the evening using the 24 hour clock? How would you express 10:20 in the evening?

1945 hr 2220 hr

P.O. 6.10.03.01&.04

NAME: _____ **CLASS:** _____ **DATE:** _____

Estimate each sum or difference. Then find the actual sum or difference.

(a)

	my estimate
3 ft 11 in.	4 ft
+5 ft 10 in.	+ 6 ft
9 ft 9 in.	10 ft

(b)

	my estimate
8 yd 1 ft	8 yd
-3 yd 2 ft	- 4 yd
4 yd 2 ft	4 yd

(c)

	my estimate
5 ft 9 in.	6 ft
+7 ft 8 in.	+ 8 ft
13 ft 5 in.	14 ft

(d)

	my estimate
6 ft 8 in.	7 ft
-2 ft 11 in.	- 3 ft
3 ft 9 in.	4 ft

Answers will vary.

Study the cards and then write one addition and one subtraction problem for each match. One problem has been started for you.

8 ft 2 in. (a)	12 yd 1 ft (b)	6 ft 9 in. (c)	10 yd 2 ft (d)

For my first problem I am using the measurements on cards [a] and [c]:
Julio can run and jump 8 ft 2 in. His brother Hector can run and jump 6 ft 9 in.

For my second problem I am using the measurements on cards [ ] and [ ]:

For my third problem I am using the measurements on cards [ ] and [ ]:

For my fourth problem I am using the measurements on cards [ ] and [ ]:

P.O. 6.10.03.02-.04

NAME: _____ CLASS: _____ DATE: _____

Add or subtract to solve the examples below.

a. 5 lb 10 oz
+3 lb 9 oz
9 lb 3 oz

b. 7 lb 3 oz
-2 lb 14 oz
4 lb 5 oz

c. 10 lb 2 oz
- 3 lb 15 oz
6 lb 3 oz

d. 8 lb 15 oz
+7 lb 14 oz
16 lb 13 oz

e. 6 gal 3 qt
-2 gal 1 qt
4 gal 2 qt

f. 8 qt
-2 qt 1 pt
5 qt 1 pt or 1 gal 1 qt 1 pt

g. 3 qt 1 pt
+1 qt 1 pt
5 qt or **1 gal 1 qt**

h. 16 gal 2 qt
+ 7 gal 3 qt
24 gal 1 qt

Write and solve a word problem using the information given.

Answers will vary.

a. Jack will be having many guests at his house for Thanksgiving Day. He is baking a 19 lb 14 oz turkey. His friend Dana is having fewer guests and a smaller turkey which weighs 8 lb 12 oz.

_____

_____

_____

b. On Saturday, Mr. DeSoto used $12\frac{1}{2}$ gallons of gasoline. The next day he used $15\frac{1}{4}$ gallons.

_____

_____

_____

c. At the school picnic we served 15 gallons 3 quarts of orange drink and 10 gallons 2 quarts of lemonade.

_____

_____

_____

SHARPENING YOUR SKILLS

Units 10, 11, 12

Name: _____ Class: _____ Date: _____

1. Complete the following:

a. 1 T = 2000 lb

b. $\frac{1}{4}$ T = 500 lb

c. $\frac{1}{2}$ T = 1000 lb

2. Complete the following:

a. $\frac{1}{3}$ ft = 4 in.

b. $\frac{3}{4}$ ft = 9 in.

c. $\frac{1}{2}$ yd = 18 in.

d. $\frac{1}{3}$ yd = 12 in.

3. 90 minutes = _____

(a) 1 hr 30 sec (c) 2 hr 30 min

● 1 hr 30 min (d) Not Here

4. 27 hours = _____

(e) 2 day 7 hr ● 1 day 3 hr

(f) 1 day 30 min (h) Not Here

5. 75 seconds = _____

(a) 1 hr 15 min (c) 1 min 5 sec

(b) 2 min 15 sec ● Not Here

6. 4 decades = 40 years

7. 3 centuries = 300 years

8. 1 century = 10 decades

9.

3 yd 2 ft
+1 yd 1 ft

● 5 yd (g) 4 yd 1 ft

(f) 2 yd 1 ft (h) Not Here

10.

5 gal
-2 gal 1 qt
2 gal 3 qt

11. Today's date is _____.

Two decades from today will be _____.

Answers will vary.

12. Boris bought $\frac{1}{2}$ lb of peanuts and $\frac{1}{4}$ lb of cashews. How many ounces of nuts did he buy?

12 oz

P.O. 6.14.04.01-.02

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

1. Find equivalent fractions in higher terms.

$\frac{3 \times 4}{8 \times 4} = \frac{12}{32}$ $\frac{3}{8} = \frac{12}{32}$

$\frac{1 \times 6}{9 \times 6} = \frac{6}{54}$ $\frac{1}{9} = \frac{6}{54}$

$\frac{7 \times 3}{10 \times 3} = \frac{21}{30}$ $\frac{7}{10} = \frac{21}{30}$

$\frac{5 \times 7}{6 \times 7} = \frac{35}{42}$ $\frac{5}{6} = \frac{35}{42}$

$\frac{1 \times 8}{2 \times 8} = \frac{8}{16}$ $\frac{1}{2} = \frac{8}{16}$

2. Write an equivalent fraction in higher terms.

Answers will vary.

$\frac{5 \times \square}{9 \times \square} = \square$

$\frac{4 \times \square}{7 \times \square} = \square$

$\frac{2 \times \square}{12 \times \square} = \square$

$\frac{11 \times \square}{12 \times \square} = \square$

$\frac{1 \times \square}{3 \times \square} = \square$

3. Find the missing numerator or denominator to make each pair of fractions equivalent.

$\frac{3}{4} = \frac{6}{8}$

$\frac{7}{9} = \frac{42}{54}$

$\frac{5}{8} = \frac{15}{24}$

$\frac{7}{12} = \frac{35}{60}$

$\frac{2}{3} = \frac{14}{21}$

4. Find equivalent fractions in lower terms.

$\frac{3 + 3}{9 + 3} = \frac{1}{3}$ $\frac{3}{9} = \frac{1}{3}$

$\frac{8 + 4}{32 + 4} = \frac{2}{8}$ $\frac{8}{32} = \frac{2}{8}$

$\frac{12 + 2}{30 + 2} = \frac{6}{15}$ $\frac{12}{30} = \frac{6}{15}$

$\frac{18 + 6}{18 + 6} = \frac{3}{3}$ $\frac{18}{18} = \frac{3}{3}$

5. Write an equivalent fraction in lower terms.

* Answers will vary.

$\frac{14 + 2}{16 + 2} = \frac{7}{8}$

* $\frac{8 + \square}{20 + \square} = \square$

* $\frac{12 + \square}{32 + \square} = \square$

$\frac{25 + 5}{45 + 5} = \frac{5}{9}$

6. Find the missing numerator or denominator to make each pair of fractions equivalent.

$\frac{10}{16} = \frac{5}{8}$

$\frac{9}{27} = \frac{3}{9}$

$\frac{16}{30} = \frac{8}{15}$

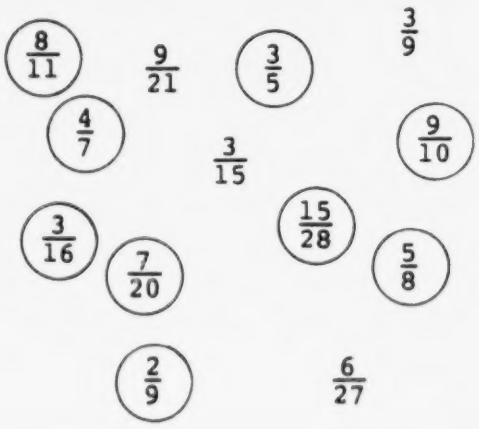
$\frac{8}{24} = \frac{2}{6}$

P.O. 6.14.04.03

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

1. Circle the fractions that are expressed in lowest terms.



2. In each group, find the fraction that is expressed in lowest terms. Write it on the line.

$\frac{2}{6}, \frac{3}{9}, \frac{1}{3}, \frac{4}{12}$ $\frac{1}{3}$

$\frac{6}{10}, \frac{3}{5}, \frac{12}{20}, \frac{15}{20}$ $\frac{3}{5}$

$\frac{2}{7}, \frac{6}{21}, \frac{12}{42}, \frac{4}{14}$ $\frac{2}{7}$

3. Express each fraction in simplest form.

$\frac{4}{10} = \frac{2}{5}$	$\frac{9}{36} = \frac{1}{4}$	$\frac{8}{16} = \frac{1}{2}$	$\frac{9}{24} = \frac{3}{8}$
$\frac{6}{18} = \frac{1}{3}$	$\frac{10}{20} = \frac{1}{2}$	$\frac{12}{24} = \frac{1}{2}$	$\frac{10}{24} = \frac{5}{12}$
$\frac{4}{32} = \frac{1}{8}$	$\frac{5}{25} = \frac{1}{5}$	$\frac{12}{16} = \frac{3}{4}$	$\frac{4}{12} = \frac{1}{3}$

Do you remember?

Identify the prior knowledge needed and solve.

Jackie invited several friends for dinner. Her mother prepared a meat loaf which included: 2 lb 12 oz ground beef, $1\frac{1}{2}$ lb ground veal, 1 lb ground pork. How many pounds and ounces of meat were used to prepare the meat loaf?

Prior knowledge needed 16 oz = 1 lb

Answer: 5 pounds 4 ounces

P.O. 6.14.05.01-.02

NAME: _____ CLASS: _____ DATE: _____

Circle the common multiples of each set. Write the LCM.

1. 3, 5

3	5	6	8	10	12
(15)	17	(30)	40	(45)	(90)

The LCM of 3 and 5 is 15.

2. 4, 12

4	6	8	9	12	15
18	20	(24)	30	(36)	48

The LCM of 4 and 12 is 12.

Find the LCM of each group of numbers.

3. 2, 4, 5

Multiples of 2: _____

Multiples of 4: _____

Multiples of 5: _____

The LCM of 2, 4, and 5 is 20.

4. 4, 8, 10

Multiples of 4: _____

Multiples of 8: _____

Multiples of 10: _____

The LCM of 4, 8, and 10 is 40.

Rename each group of fractions as equivalent fractions with common denominators.

5. $\frac{5}{8}, \frac{3}{7}$

$\frac{5}{8} = \frac{35}{56}$ $\frac{3}{7} = \frac{24}{56}$

6. $\frac{2}{3}, \frac{3}{5}$

$\frac{2}{3} = \frac{10}{15}$ $\frac{3}{5} = \frac{9}{15}$

7. $\frac{2}{3}, \frac{5}{6}, \frac{7}{12}$

$\frac{2}{3} = \frac{8}{12}$ $\frac{5}{6} = \frac{10}{12}$ $\frac{7}{12} = \frac{7}{12}$

8. $\frac{2}{3}, \frac{3}{4}, \frac{1}{2}$

$\frac{2}{3} = \frac{8}{12}$ $\frac{3}{4} = \frac{9}{12}$ $\frac{1}{2} = \frac{6}{12}$

P.O. 6.06.01.01

NAME: _____ CLASS: _____ DATE: _____

Find the LCM for each pair of fractions. Change them to equivalent fractions with a common denominator. Write <, >, or = in each circle.

1. $\frac{2}{5}, \frac{4}{9}$

LCM = 45

$\frac{2}{5} = \frac{18}{45}$ $\frac{4}{9} = \frac{20}{45}$

$\frac{2}{5} < \frac{4}{9}$

2. $\frac{5}{8}, \frac{3}{4}$

LCM = 8

$\frac{5}{8} = \frac{5}{8}$ $\frac{3}{4} = \frac{6}{8}$

$\frac{5}{8} < \frac{3}{4}$

3. $\frac{12}{14}, \frac{18}{21}$

LCM = 42

$\frac{12}{14} = \frac{36}{42}$ $\frac{18}{21} = \frac{36}{42}$

$\frac{12}{14} = \frac{18}{21}$

4. $\frac{4}{10}, \frac{3}{8}$

LCM = 40

$\frac{4}{10} = \frac{16}{40}$ $\frac{3}{8} = \frac{15}{40}$

$\frac{4}{10} > \frac{3}{8}$

5. $\frac{5}{6}, \frac{3}{4}$

LCM = 12

$\frac{5}{6} = \frac{10}{12}$ $\frac{3}{4} = \frac{9}{12}$

$\frac{5}{6} > \frac{3}{4}$

6. $\frac{3}{7}, \frac{3}{5}$

LCM = 35

$\frac{3}{7} = \frac{15}{35}$ $\frac{3}{5} = \frac{21}{35}$

$\frac{3}{7} < \frac{3}{5}$

7. $\frac{6}{11}, \frac{1}{2}$

LCM = 22

$\frac{6}{11} = \frac{12}{22}$ $\frac{1}{2} = \frac{11}{22}$

$\frac{6}{11} > \frac{1}{2}$

8. $\frac{7}{15}, \frac{9}{20}$

LCM = 60

$\frac{7}{15} = \frac{28}{60}$ $\frac{9}{20} = \frac{27}{60}$

$\frac{7}{15} > \frac{9}{20}$

Do you remember?

Express the following base five numerals as base ten equivalents.

142_{five} = 47 ten

313_{five} = 83 ten

2024_{five} = 264 ten

1440_{five} = 245 ten

P.O. 6.06.01.02-.03

NAME: _____ CLASS: _____ DATE: _____

Write the fractions from least to greatest.

1. $\frac{6}{11}, \frac{1}{2}$

$\frac{1}{2} < \frac{6}{11}$

2. $\frac{5}{8}, \frac{7}{10}, \frac{2}{5}$

$\frac{2}{5} < \frac{5}{8} < \frac{7}{10}$

3. $\frac{2}{3}, \frac{1}{2}, \frac{5}{6}$

$\frac{1}{2} < \frac{2}{3} < \frac{5}{6}$

4. $\frac{2}{3}, \frac{5}{18}, \frac{3}{4}$

$\frac{5}{18} < \frac{2}{3} < \frac{3}{4}$

5. $\frac{3}{4}, \frac{7}{12}, \frac{5}{8}$

$\frac{7}{12} < \frac{5}{8} < \frac{3}{4}$

6. $\frac{1}{8}, \frac{3}{16}, \frac{5}{32}$

$\frac{1}{8} < \frac{5}{32} < \frac{3}{16}$

Solve the following word problems:

7. Ted, Jill, and Sally discovered that they were reading the same book for a book report. Ted has read $\frac{3}{4}$ of the book, Jill has read $\frac{4}{5}$ of the book, and Sally has read $\frac{7}{10}$ of the book. Who has read the least number of pages? Who has read the greatest number of pages?

Sally has read the least number of pages.

Jill has read the greatest number of pages.

8. The three sixth grade classes in the Lander's Elementary School sold five dozen boxes of cookies among them. Class 6A sold $\frac{2}{5}$ of the boxes, class 6B sold $\frac{4}{15}$ of the boxes, and class 6C sold $\frac{1}{3}$ of the boxes. Which class sold the least number of boxes of cookies? Which class sold the greatest number of boxes of cookies?

Class 6B sold the least number of boxes of cookies.

Class 6A sold the greatest number of boxes of cookies.

9. Create and solve a word problem which involves comparing fractions.

Answers will vary.

SHARPENING YOUR SKILLS

Units 13, 14, 15

Name: _____ Class: _____ Date: _____

1. Complete each pair of equivalent fractions.

a. $\frac{1}{2} = \frac{[5]}{10}$

b. $\frac{3}{5} = \frac{9}{[15]}$

c. $\frac{4}{9} = \frac{16}{[36]}$

d. $\frac{2}{7} = \frac{[14]}{49}$

2. Express each fraction below in simplest form (lowest terms).

a. $\frac{3}{9} = \frac{1}{3}$ d. $\frac{6}{8} = \frac{3}{4}$

b. $\frac{4}{8} = \frac{1}{2}$ e. $\frac{10}{30} = \frac{1}{3}$

c. $\frac{5}{25} = \frac{1}{5}$ f. $\frac{6}{16} = \frac{3}{8}$

3. The LCM of 4 and 10 is _____.

(a) 2 ● 20

(b) 4 (d) Not Here

4. The LCM of 3 and 7 is _____.

(e) 3 (g) 42

● 21 (h) Not Here

5. Express the fractions below as equivalent fractions with the lowest common denominator.

$\frac{1}{2} = \frac{5}{10}$

$\frac{2}{5} = \frac{4}{10}$

6. Fill in the oval with the correct answer, yes or no.

a. Does $\frac{2}{5} = \frac{4}{10}$? ● (no)

b. Does $\frac{4}{7} = \frac{6}{9}$? (yes) ●

c. Does $\frac{3}{8} = \frac{1}{3}$? (yes) ●

d. Does $\frac{1}{4} = \frac{10}{40}$? ● (no)

e. Does $\frac{6}{8} = \frac{9}{12}$? ● (no)

7. Write >, <, or = to make each number sentence true.

a. $\frac{2}{3}$ (<) $\frac{4}{5}$

b. $\frac{3}{8}$ (>) $\frac{1}{4}$

c. $\frac{5}{20}$ (=) $\frac{2}{8}$

8. Tanya bought $\frac{2}{3}$ pound of peanuts, $\frac{3}{8}$ pound of cashews, and $\frac{1}{2}$ pound of pistachio nuts. Which bag of nuts is the heaviest?

$\frac{2}{3}$ lb of peanuts

P.O. 6.07.01.01-.02

NAME: _____ **CLASS:** _____ **DATE:** _____

Follow the directions below.

1. Write the place value of each underlined digit.

0.7$\underline{4}$82	hundredths	36.$\underline{5}$109	tenths
3.675$\underline{0}$	ten-thousandths	17.086$\underline{3}$	ten-thousandths
4.78$\underline{1}$1	thousandths	$\underline{2}$6.0005	tens
2.359$\underline{6}$	ten-thousandths	90.12$\underline{3}$4	thousandths

2. Write the value of each underlined digit, both as a common fraction and as a decimal fraction equivalent.

6.10$\underline{2}$9	$\frac{2}{1000}$ = 0.002	1.$\underline{2}$345	$\frac{2}{10}$ = 0.2
15.087$\underline{0}$	$\frac{7}{1000}$ = 0.007	0.8$\underline{9}$01	$\frac{9}{100}$ = 0.09
0.758$\underline{3}$	$\frac{3}{10000}$ = 0.0003	0.000$\underline{9}$	$\frac{9}{10000}$ = 0.0009
3.5$\underline{4}$67	$\frac{4}{100}$ = 0.04	11.023$\underline{6}$	$\frac{3}{1000}$ = 0.003

3. What's my number?

I have a 6 in my tens column.
My thousandths digit is 4 less than my tens.
My ten-thousandths digit equals my tens plus my thousandths.
My ones and hundredths digits are the same and have a sum of 10.
If you subtract my ones digit from my hundredths digit, the difference is my tenths digit.

6 5 . 0 5 2 8

Do you remember?

Reduce to lowest terms:

$\frac{6}{12} = \frac{1}{2}$ $\quad \frac{4}{12} = \frac{1}{3}$ $\quad \frac{9}{12} = \frac{3}{4}$ $\quad \frac{2}{12} = \frac{1}{6}$

$\frac{8}{12} = \frac{2}{3}$ $\quad \frac{3}{12} = \frac{1}{4}$ $\quad \frac{10}{12} = \frac{5}{6}$ $\quad \frac{12}{12} = 1$

P.O. 6.07.01.02

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

1. Write the decimal number for each.

five tenths	0.5	fifteen ten-thousandths	0.0015
nine hundredths	0.09	thirty-five hundredths	0.35
seven thousandths	0.007	eleven ten-thousandths	0.0011
three ten-thousandths	0.0003	ninety-nine thousandths	0.099

2. Rewrite each fraction as a decimal.

$\frac{5}{100}$ = 0.05	$\frac{6}{10,000}$ = 0.0006	$\frac{3102}{10,000}$ = 0.3102
$\frac{7}{10}$ = 0.7	$\frac{25}{100}$ = 0.25	$\frac{6}{10}$ = 0.6
$\frac{6}{1000}$ = 0.006	$\frac{95}{1000}$ = 0.095	$\frac{99}{100}$ = 0.99
$\frac{125}{10,000}$ = 0.0125	$\frac{6}{100}$ = 0.06	$\frac{32}{10,000}$ = 0.0032

3. Rewrite each mixed numeral as a decimal number.

$3\frac{7}{10}$ = 3.7	$5\frac{4}{1000}$ = 5.004	$10\frac{1}{10,000}$ = 10.0001
$16\frac{9}{100}$ = 16.09	$4\frac{15}{100}$ = 4.15	$\frac{12}{100}$ = 0.12
$33\frac{17}{1000}$ = 33.017	$48\frac{89}{10,000}$ = 48.0089	$2\frac{11}{1000}$ = 2.011
$2\frac{42}{10,000}$ = 2.0042	$1\frac{9}{10,000}$ = 1.0009	$5\frac{8}{10}$ = 5.8

CHALLENGE!

Write the missing decimal number using the following clues:

A. The tenths digit is twice the tens digit.

B. The thousandths digit is three less than the tenths digit.

C. The hundredths digit is the sum of the tens digit and the tenths digit.

D. The ten-thousandths digit and the ones digit are each the difference of the tenths digit and the thousandths digit.

2 3 . 4 6 1 3

P.O. 6.07.01.03-.04

NAME: _____ **CLASS:** _____ **DATE:** _____

Follow the directions below.

1. Fill in the proper symbol (>, <, or =) in each circle below to make correct number sentences.

1.4375	>	1.4199	2.2	<	2.21
6.001	>	5.9999	1.65	>	1.3
0.3924	<	0.393	12.4	=	12.400
1.0427	<	1.0428	0.7	<	0.75
2.3	=	2.3000	1.776	<	17.76
5.01	<	5.10	3.020	=	3.02

2. Write a decimal number on each line that will make the sentence true.

Answers will vary.

0.75 > _____	1.073 = _____
0.02 < _____	6.2517 > _____
_____ = 3.60	6.2517 < _____
2.0005 > _____	_____ < 6.02
3.154 < _____	5.62 > _____

3. Order each set of numbers from least to greatest.

3.6, 3.085, 2.9987	2.9987	<	3.085	<	3.6
0.8, 0.709, 0.7832	0.709	<	0.7832	<	0.8
8.75, 8.7097, 8.699	8.699	<	8.7097	<	8.75
0.4, 0.4001, 0.981	0.4	<	0.4001	<	0.981

P.O. 6.07.02.01-.02

NAME: _____ CLASS: _____ DATE: _____

A. Round each decimal to the nearest tenth.

5.650	5.7	3.7751	3.8	6.07	6.1
2.87	2.9	8.9108	8.9	1.108	1.1
16.095	16.1	6.285	6.3	5.37	5.4
11.749	11.7	3.71	3.7	5.42	5.4
3.138	3.1	2.88	2.9	2.04	2.0
0.066	0.1	3.69	3.7	1.98	2.0

B. Round each decimal to the nearest hundredth.

2.569	2.57	0.250	0.25	14.7179	14.72
3.714	3.71	0.259	0.26	0.201	0.20
1.395	1.40	6.586	6.59	1.666	1.67
6.272	6.27	8.9825	8.98	2.135	2.14
8.065	8.07	4.3076	4.31	3.531	3.53
9.991	9.99	16.1508	16.15	7.7777	7.78

C. Write a numeral that, when rounded to the nearest tenth or hundredth, would be the given number. The first one is done for you.

Answers will vary.

4.669 rounded to the nearest hundredth is 4.67

_____ rounded to the nearest hundredth is 3.75

_____ rounded to the nearest hundredth is 4.59

_____ rounded to the nearest tenth is 2.1

_____ rounded to the nearest tenth is 8.0

_____ rounded to the nearest tenth is 16.8

P.O. 6.14.06.01-.02&.05

NAME: _____ CLASS: _____ DATE: _____

Answers will vary.

Complete the charts below.

OBJECTS/ITEMS MEASURED IN CLASSROOM	UNIT	ESTIMATED LENGTH	ACTUAL LENGTH	DIFFERENCE
1. length of the desk				
2. pencil				
3.				
4.				
5.				

OBJECTS/DISTANCES MEASURED IN THE SCHOOL	UNIT	ESTIMATED LENGTH	ACTUAL LENGTH	DIFFERENCE
1. length of the yard				
2.				
3.				
4.				
5.				

OBJECTS/ITEMS/PERSONS MEASURED AT HOME	UNIT	ESTIMATED LENGTH	ACTUAL LENGTH	DIFFERENCE
1. kitchen table				
2. height of refrigerator				
3.				
4.				
5.				

Complete and solve the following word problem:

Keith is 162 cm tall. His brother William is 182 cm.

_____

_____

_____

_____

P.O. 6.14.06.02&.05

Answers will vary.

NAME: _____ CLASS: _____ DATE: _____

Estimate and measure length in meters, centimeters, and millimeters.

Small Objects/Items	Estimate		Actual Length		Difference	
	cm	mm	cm	mm	cm	mm
1. a pen						
2. a pencil						
3. any book						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

Measure the distance between:	Estimate in Meters	Actual Length in Meters	Difference
1. two rooms in a school			
2. two street signs			
3.			
4.			
5.			

CHALLENGE!

Students in class 6-301 wanted to measure the length and width of the auditorium but had no meter stick. They had a metric ruler and adding machine tape. They decided to construct their own metric tapes.

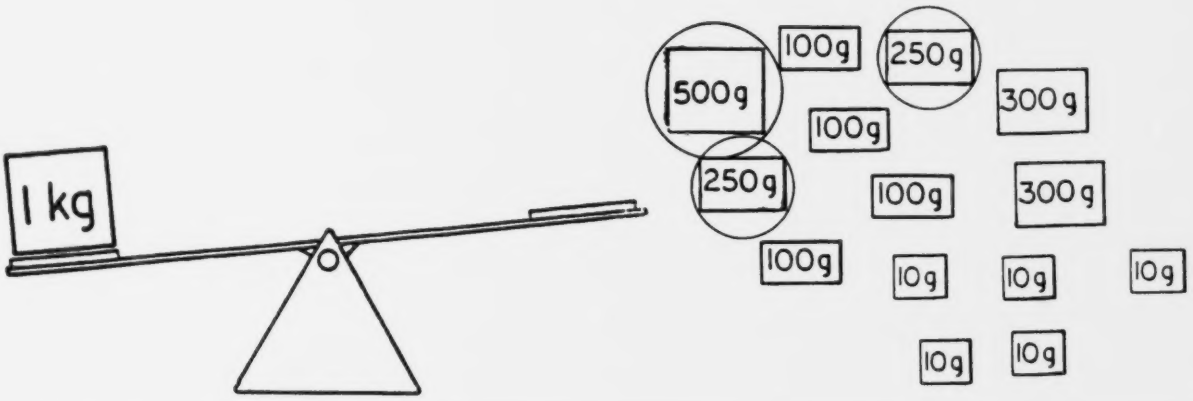
1) Construct a meter stick using the metric ruler and the adding machine tape.
2) Measure the length of the school's auditorium.

P.O. 6.14.06.03-.05

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

I. Use the fewest number of weights to balance the beam. Circle the weights you would use.



II. **Solve.**

1. Jason hit two home runs. The first ball traveled a distance of 98 meters. The second landed in the bleacher section, 109 meters from home plate. How much farther did the second home run ball travel than the first? 11 m

2. What is the equivalent length in centimeters of a desk which is $2\frac{1}{2}$ m long? 250 cm

3. If a 1-liter bottle contains 565 mL of soda, how much liquid is missing from the container? 435 mL

4. David's mathematics textbook weighs $\frac{1}{4}$ kg. His science book weighs $3\frac{1}{2}$ kg. What is their combined weight in grams? 3750 g

5. Create and solve your own problem.

Answers will vary.

SHARPENING YOUR SKILLS

Units 16, 17, 18

Name: _____ **Class:** _____ **Date:** _____

1. The value of the 6 in 4.167 is _____.

   (a) 60 ● 0.06
   (b) 6 (d) Not Here

2. The value of the 3 in 51.243 is _____.

   ● 3 thousandths
   (f) 3 tenths
   (g) 3 ten-thousandths
   (h) Not Here

3. Express each fraction below as a decimal.

   a. $\frac{4}{10}$ = 0.4 d. $\frac{3421}{10,000}$ = 0.3421
   b. $\frac{34}{100}$ = 0.34 e. $\frac{9}{100}$ = 0.09
   c. $\frac{15}{1000}$ = 0.015 f. $\frac{246}{10,000}$ = 0.0246

4. Write >, <, or = to make each number sentence true.

   a. 0.36 (>) 0.036
   b. 0.456 (>) 0.4
   c. 3.84 (>) 0.3845
   d. 2.51 (<) 25.1
   e. 0.38 (=) 0.3800

5. Which group of decimals is in order from least to greatest?

   ● 0.53, 0.581, 0.6
   (b) 1.35, 1.035, 1.53
   (c) 0.664, 0.0666, 0.466
   (d) Not Here

6. 0.379 rounded to the nearest tenth is _____.

   (e) 0.3 (g) 1.0
   ● 0.4 (h) Not Here

7. 4.228 rounded to the nearest tenth is _____.

   (a) 4.23 (c) 4.0
   (b) 4.3 ● Not Here

8. 3.677 rounded to the nearest hundredth is _____.

   (e) 3.67 (g) 3.77
   ● 3.68 (h) Not Here

9. 27.008 rounded to the nearest hundredth is _____.

   (a) 27.08 (c) 27.1
   ● 27.01 (d) Not Here

10. Complete the following:

    a. $\frac{1}{10}$ meter = 1 dm
    b. $\frac{1}{1000}$ meter = 1 mm
    c. 1000 grams = 1 kg
    d. 1000 milliliters = 1 L

P.O. 6.10.04.01&.05

NAME: _____ CLASS: _____ DATE: _____

Complete the following.

I.

a) 5000 m = 5 km

b) 60 mm = 6 cm

c) 286 cm = 2.86 m

d) 5250 mm = 5.25 m

e) 35 mm = 3.5 cm

f) 24 m = 2400 cm

g) 162 cm = 1.62 m

h) 1000 cm = 10 m

i) 1.25 m = 125 cm

j) 5.2 km = 5200 m

II. **Estimate, measure, and record the length of eight different items/objects/distances. Express the measurement at least two ways. Include your height and that of one other member of your family.**

Answers will vary.

Item/Object Distance	Estimate	mm	cm	dm	m	km
1. pen	18 cm	145	14.5			
2. Mother's height						
3.						
4.						
5.						
6.						
7.						
8.						

Answers may vary.

III. **Which unit (km, m, dm, cm, or mm) would you use to best express the lengths or distances of each of the following?**

1. trip from N.Y.C. to L.A. ____
2. distance of 1 city block ____
3. length of a paper clip ____
4. height of a 6th grader ____
5. length of a school bus ____
6. width of your pinky finger ____
7. thickness of a dime ____
8. length of your classroom ____
9. height from desk to floor ____
10. length of a looseleaf book ____

P.O. 6.10.04.02&.05

NAME: _____ CLASS: _____ DATE: _____

Complete the following.

a) 54 g = 0.054 kg

b) 2.6 kg = 2600 g

c) 7.8 g = 7800 mg

d) 4 kg = 4000 g

e) 846 kg = 846,000 g

f) 135 g = 0.135 kg

g) 0.924 kg = 924 g

h) 1.9 kg = 1900 g

i) 813 mg = 0.813 g

j) 907 g = 907,000 mg

II. Look at labels on cans, bottles, and boxes which display metric units of measure. List the items and the weights shown on their labels and circle them. Express the equivalent weights in the other two columns on the chart.

Answers will vary.

Container	Circle the weight shown on the label		
	kg	g	mg
1. Krispy Cereal Box	0.284	(284)	284,000
2.			
3.			
4.			
5.			
6.			
7.			
8.			

III. Use the information in the chart above to create and solve your own problem.

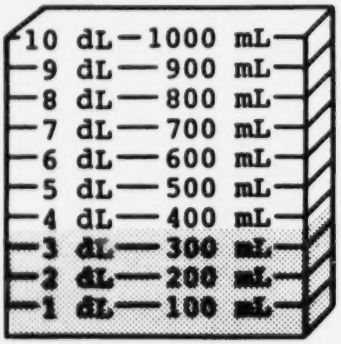
Answers will vary.

P.O. 6.10.04.03

NAME: _____ CLASS: _____ DATE: _____

Find the capacity on six different labels. "Pour" or shade in the approximate amount on the liter cubes for questions A to D. Express the amount three different ways. The first one is completed for you. For questions E and F, write the approximate amount that is shown in each cube in 3 equivalent measures.

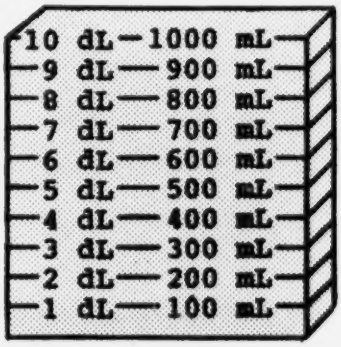
A.



a 0.354 L can of soda

3.54 dL 0.354 L 354 mL

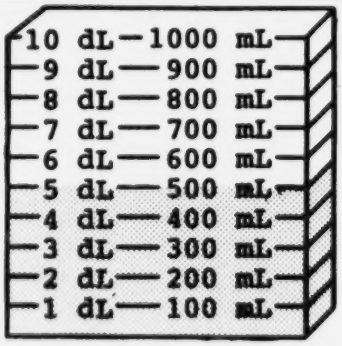
B.



one liter of milk

10 dL 1 L 1000 mL

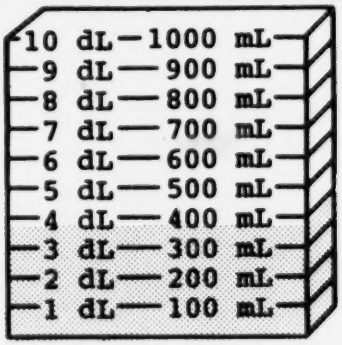
C.



one-half liter of oil

5 dL 0.5 L 500 mL

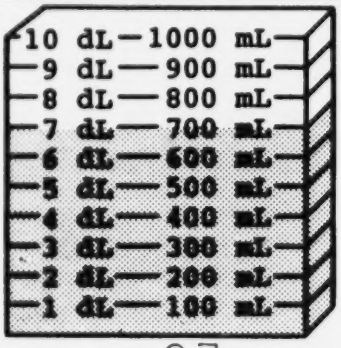
D.



3.75 dL of water

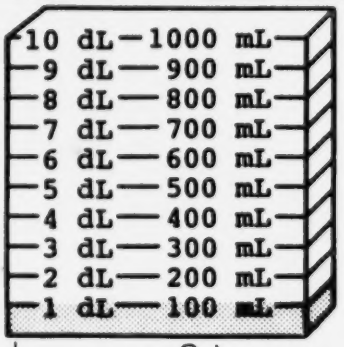
3.75 dL 0.375 L 375 mL

E.



7 dL 0.7 L 700 mL

F.



1 dL 0.1 L 100 mL

P.O. 6.10.04.04-.05

NAME: _____ CLASS: _____ DATE: _____

I. **Which is the approximate equivalent of each measure? Circle the best answer.**

1. A(n) _____ is a little less than 3 centimeters.
   (A) inch (B) foot (C) yard

2. A _____ is a little more than 2 pounds.
   (A) gram (B) kilogram (C) milligram

3. A _____ is a little less than 2 kilometers.
   (A) yard (B) mile (C) 10 miles

4. A _____ is a little more than a yard.
   (A) meter (B) kilometer (C) centimeter

5. A _____ is about a quart.
   (A) liter (B) gallon (C) pint

6. _____ is about the length of your arm.
   (A) 60 centimeters (B) 60 feet (C) 2 meters

7. A 500 gallon fuel truck holds about _____.
   (A) 500 quarts (B) 2000 liters (C) 200 liters

8. The height of a 10-story building is about _____.
   (A) 300 meters (B) 30 meters (C) 3 meters

II. **Solve each problem.**

1. Jill has a 1-meter length of ribbon. If she cuts off 30 centimeters, how many centimeters are left? 70 cm

2. A 2-liter bottle of water fell over. If 65 milliliters spilled out, how many liters of water were still in the bottle? 1.935 L

3. Pedro weighs 68 kilograms. How many grams is this? 68,000 g

4. The distance from Michael's house to school is 1250 meters. How many kilometers is this? 1.250 km or 1.25 km

5. A baseball bat is 98 centimeters long.

   (a) What part of a meter is it? 0.98 m

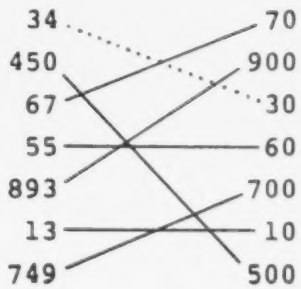
   (b) How many millimeters long is it? 980 mm

P.O. 6.14.07.01-.02

NAME: _____ CLASS: _____ DATE: _____

1. Match Them Up

Draw a line from each number on the left to its rounded number on the right.



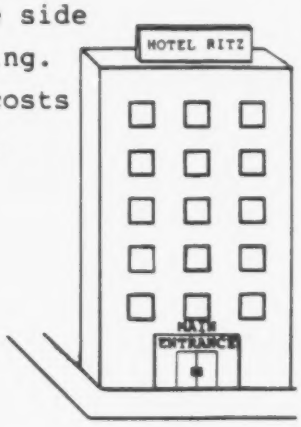
2. For each multiplication problem, circle the example which will provide the best estimate of the actual product.

A. 350 x 24 | 400 x 30 | (400 x 20) | 300 x 20

B. 242 x388 | 300 x400 | 200 x300 | (200 x400)

C. 687 x 19 | (700 x 20) | 700 x 10 | 600 x 20

3. The Hotel Ritz is fixing all the windows on the main entrance side of the building. Each window costs $9.45 to fix.



A. Estimate the cost of fixing the windows.

$180

B. What is the actual cost of fixing the windows?

$141.75

4. Fill in the missing digits for this problem.

```
  1 2 3
x 4 5 6
-------
  7 3 8
6 1 5 0
4 9 2 0 0
```

A. Find the product. 56,088

For items B-D, circle the correct answer.

B. 123 is the _____.

multiplier (multiplicand)

C. 738 is called the _____.

(partial product) product

D. This problem has _____ partial products.

1 2 (3) 4

P.O. 6.14.07.03

NAME: _____ CLASS: _____ DATE: _____

Use the advertisement to answer the questions below.

Fox's Floor Tile Sale

BUY:	PAY:
50 - 74 tiles	$1.45 per tile
75 - 99 tiles	$1.35 per tile
100 or more tiles	$1.15 per tile

SIZE OF EACH TILE - 1 SQ FT

Quantities less than 50	
NOT on sale	$1.89 per tile

TAX INCLUDED

1. Mrs. Johnson is putting floor tiles on her kitchen floor. If she buys 75 tiles at the sale price, how much will she pay? $101.25

2. A bathroom floor measures 12 feet in length and 6 feet in width.
   a. How many square feet is the bathroom floor? 72 sq ft
   b. How many tiles are needed to cover the bathroom floor? 72
   c. How much will each tile cost? $1.45

3. Mr. Glass needs 122 tiles. How much will he pay? $140.30

4 Mrs. Johnson purchased floor tiles for three different rooms in her house. She paid $105.90 for one room and $85.78 for each of the other two rooms. How much did she pay to tile the three rooms? $277.46

5. Estimate the cost of buying 45 tiles at the regular price. * $90

6. Mr. Smith has four $20 bills in his wallet. Is this enough money to buy 50 tiles at the sale price? yes ✓ no ____
   a. If yes, how much change will he get back? $7.50
   b. If no, explain. _____

* Estimates may vary.

P.O. 6.04.01.01-.02

NAME: _____ CLASS: _____ DATE: _____

I. Circle the name of the student who estimated the factors by rounding to their left-most places.

5876
x 745

Troy	Kim	Tanya	(David)
5000	6000	5900	6000
x 700	x 800	x 700	x 700

II. Would you round up or down?

Example:
Round 8272 down to 8000.

A. Round 6439 down to 6000.
B. Round 354 up to 400.
C. Round 2511 up to 3000.
D. Round 289 up to 300.
E. Round 535 down to 500.
F. Round 7500 up to 8000.
G. Round 1499 down to 1000.

III. Match the factors to the estimated products.

FACTORS	ESTIMATED PRODUCTS
1253 x 296	3,200,000
348 x 6811	1,000,000
7506 x 412	300,000
9289 x 554	2,100,000
249 x 4649	5,400,000

IV. Round factors before you multiply. Shade in the circle of the correctly estimated product on the answer grid at the bottom of the page.

Sample: 4924 x 311 → 5 000 x 300 = 1,500,000

(a) 150,000 (c) 1,600,000
(b) 1,500,000 (d) 15,000

1. 6735 x 436

(a) 2,400,000 (c) 3,500,000
(b) 280,000 (d) 2,800,000

2. 5319 x 762

(e) 4,000,000 (g) 3,500,000
(f) 400,000 (h) 4,800,000

3. 2730 x 637

(a) 180,000 (c) 1,800,000
(b) 18,000,000 (d) 1,200,000

4. 2499 x 854

(e) 2,400,000 (g) 1,600,000
(f) 2,700,000 (h) 1,800,000

ANSWER GRID

Sample:	(a)	●	(c)	(d)
1.	(a)	(b)	(c)	●
2.	●	(f)	(g)	(h)
3.	(a)	(b)	●	(d)
4.	(e)	(f)	(g)	●

P.O. 6.04.01.03

NAME: _____ CLASS: _____ DATE: _____

I. Find the products. Match your answers with those found in the message. Write the letter of the example above the matching product to complete the message below.

(V) 5 116 × 842 = 4,307,672

(H) 3 652 × 421 = 1,537,492

(L) 1 527 × 345 = 526,815

(M) 4 377 × 219 = 958,563

MESSAGE

W E $\frac{L}{526,815}$ O $\frac{V}{4,307,672}$ E $\frac{M}{958,563}$ A T $\frac{H}{1,537,492}$

II. Using the examples above, shade in the circle of the correct answer for each question.

1. In example V the multiplier is: (a) 5116 ● 842 (c) 10,232
2. In example H the multiplicand is: (a) 1,537,492 ● 3652 (c) 421
3. The second partial product in example L is: (a) 526,815 (b) 7635 ● 61,080
4. In example M the product is: ● 958,563 (b) 219 (c) 39,393

Do you remember?

What is the value of each underlined digit?

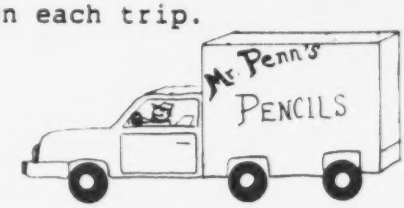
1. 92<u>4</u>,407,030 ● 4 million (b) 4 ones (c) 40 thousand
2. 378,3<u>2</u>5,900 (a) 2 thousand (b) 20 million ● 20 thousand
3. <u>3</u>6,500,000,000 (a) 3 billion (b) 30 million ● 30 billion
4. 5<u>6</u>1,571,000,000 ● 60 billion (b) 60 million (c) 600 billion
5. 589,<u>8</u>90,000,000 (a) 80 million (b) 8 million ● 8 hundred million
6. <u>9</u>25,000,000,000 (a) 9 billion (b) 900 million ● 900 billion

P.O. 6.04.01.04

NAME: _____ CLASS: _____ DATE: _____

I. Mr. Penn uses a truck to deliver boxes of pencils to the schools. His truck carries 2000 boxes of pencils on each trip.

One box of pencils:



1. How many pencils does Mr. Penn deliver in one trip? 600,000
2. If Mr. Penn makes 200 trips each year, how many boxes of pencils does he deliver? 400,000

II.

Baseball Ticket Prices	
Adults	$8.00
Children	$4.75

a. There were 4132 children at the ball park. About how much money was spent for children's tickets? (estimate) $20,000.00

b. How much did the children's tickets actually cost? $19,627.00

c. Five thousand adult tickets were purchased. How much money was spent for the adults' tickets? $40,000.00

III. Sam's Concession

Food Prices	
Frankfurter	$2.25
Popcorn	.85
Soda	1.00

a. How much did Kim spend for a frankfurter, a soda, and popcorn? $4.10

b. How much change did she receive if she paid with a $5 bill? $.90

c. If 2113 people bought frankfurters at the ball park, how much money was spent for all the frankfurters combined? $4754.25

d. How much money did Mr. Garcia spend for three frankfurters and a soda? $7.75

SHARPENING YOUR SKILLS

Units 19, 20, 21

Name: _____ **Class:** _____ **Date:** _____

I. Find the equivalent metric measurement to solve the coded message.

900 cm	- T	4.26 dL	- O
8.6 km	- T	342.0 mL	- M
913.0 m	- S	3.5 kg	- E
12.5 cm	- E	627 mg	- S
16.0 m	- G	7.8 g	- L

Coded message:

L	E	T	.	S			G	O			
0.0078 kg	125 mm	9 m		0.913 km			160dm	426mL			
					M	E	T	S			
					0.342 L	3500 g	8600 m	0.627 g			

II. Estimate and solve. Use the chart to solve the problems below.

Major Rivers in North America	
River	Miles
Alabama	729
Allegheny	610
Delaware	390

Note:
1 mi = 1760 yd

	Estimate	Solve
1. The Alabama River is _____ yards long.	1,400,000 yd	1,283,040 yd
2. The Delaware River is _____ yards shorter than the Allegheny River.	400,000 yd	387,200 yd
3. The Alabama River and the Allegheny River combined are _____ yards long.	2,600,000 yd	2,356,640 yd

III. Solve the following word problem.

CIMS University has a faculty of 5000 professors. If each professor graded 200 assignments each week, what is the total number of assignments graded at the Cims University each week?

1,000,000 assignments

IV. Round each factor to the leftmost place to find the estimated product.

a. 1420 rounds to 1000
x 180 rounds to x 200
200,000 estimated product

b. 5103 rounds to 5000
x 223 rounds to x 200
1,000,000 estimated product

P.O. 6.14.08.01

NAME: _____ **CLASS:** _____ **DATE:** _____

1. The quotient of $27\overline{)2322}$ is between _____.

   (a) 70 and 80 (c) 800 and 900
   ● 80 and 90 (d) 90 and 100

2. $32\overline{)3\ 1\ 0\ 4}$

   (e) 87 ● 97
   (f) 47 (h) NG

3. Solve. Express the remainder as a fraction.

$$47\overline{)1\ 3\ 6\ 9} \quad 29\frac{6}{47}$$

check

4. Solve. Express the remainder as a fraction.

$$61\overline{)2\ 3\ 1\ 9} \quad 38\frac{1}{61}$$

check

5. Solve using the 4-step method.

$$79\overline{)6\ 4,\ 2\ 7\ 6} \quad 813\frac{49}{79}$$

check

6. Solve using the 4-step method.

$$37\overline{)7\ 8,\ 2\ 1\ 8} \quad 2\ 1\ 1\ 4$$

check

Do you remember?

Use the common denominator method to determine whether each pair of fractions is equivalent. Shade the correct choice.

1. $\frac{2}{6}$ ● (≠) $\frac{5}{15}$
2. $\frac{4}{5}$ (=) ● $\frac{14}{18}$
3. $\frac{18}{30}$ ● (≠) $\frac{3}{5}$
4. $\frac{12}{15}$ (=) ● $\frac{5}{6}$
5. $\frac{2}{6}$ ● (≠) $\frac{9}{27}$
6. $\frac{4}{10}$ (=) ● $\frac{7}{15}$

P.O. 6.14.08.02

NAME: _____ **CLASS:** _____ **DATE:** _____

Mixed Problem Solving

1. The Intrepid is a floating museum that is docked along the Hudson River. Sailors aboard the Intrepid teach visitors about World War II. Last year 37,428 people visited the ship. Find the average number of visitors each month. solve check

   3119 visitors each month

2. The Intrepid depends on volunteers to help carry out its many programs. Over a five year period, 85 volunteers worked a total of 78,285 hours, each working the same number of hours. How many hours did each volunteer work? solve check

   921 hr

3. There are 37 separate exhibits aboard the Intrepid. If 65 people visit each exhibit every hour, how many visitors are watching the exhibits each hour? solve check

   2405 visitors

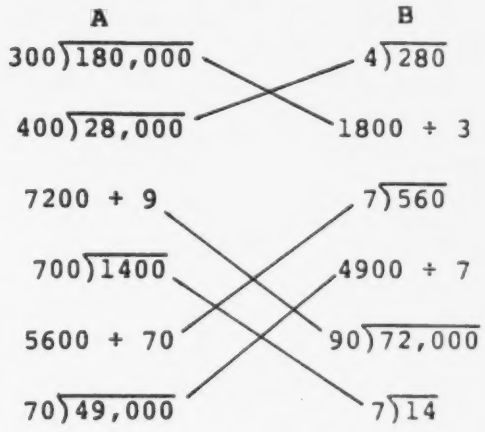
4. Last year each visitor to the Intrepid spent about $10.00 on souvenirs. About how much money was spent? solve check

   $400,000.00

P.O. 6.05.01.01-.02

NAME: _____ **CLASS:** _____ **DATE:** _____

I. Draw a line from the division example in Column A to the division example in Column B that will have the same quotient.



II. Solve and check each problem.

1. $700\overline{)56,000}$ = 80 check

2. $600\overline{)666,000}$ = 1110 check

III. For each division problem, find the quotient. Shade the circle for the correct answer.

1. $400\overline{)28,000}$

(a) 7000 ● 70
(b) 700 (d) NG

---

2. $300\overline{)900,000}$

(e) 300 ● 3000
(f) 3 (h) NG

---

3. $200\overline{)4862}$

(a) 24 (c) 62 R24
● 24 R62 (d) NG

---

4. $500\overline{)93,500}$

(e) 186 ● 187
(f) 187 R400 (h) NG

---

5. 620,080 ÷ 100 = □

(a) 620 R80 (c) 6200 R8
(b) 62 R80 ● NG

CHALLENGE!

Hard Times

1. How many centuries are there in 3744 months? 3 centuries and 12 years
2. How many centuries are there in 48,000 decades? 4800 centuries

P.O. 6.05.01.03

NAME: _____ CLASS: _____ DATE: _____

Use the chart to answer each question.

CIRCUMFERENCES OF PLANETS IN OUR SOLAR SYSTEM

PLANET	CIRCUMFERENCE	PLANET	CIRCUMFERENCE	PLANET	CIRCUMFERENCE
Mercury	15,000 km	Mars	21,000 km	Uranus	159,500 km
Venus	38,000 km	Jupiter	450,000 km	Neptune	152,600 km
Earth	40,000 km	Saturn	379,000 km	Pluto	94,000 km

Note: Different planets have different atmospheres so a space ship may use varying amounts of fuel to travel the same distance around the various planets.

1. A spaceship traveling around the circumference of Mars can go 700 km on each tank of fuel. How many tanks are needed to go completely around Mars? 30 tanks

2. A spaceship can go about 300 km on a tank of fuel. How many tanks of fuel are needed to go around Neptune? $508\frac{2}{3}$ tanks

3. Saturn's atmosphere is very difficult to travel through. If a spaceship traveling around Saturn uses a tankful of fuel to travel 100 km, how many tanks are necessary to travel it's circumference? 3790 tanks

4. a) Which planet has the greatest circumference? Jupiter
   b) Which planet has the smallest circumference? Mercury
   c) If a spaceship can travel 500 km per tank of fuel, how many tanks of fuel will it need to circle around the planet with the greatest circumference? 900 tanks
   d) How many tanks of fuel will it use to circle around the smallest planet? 30 tanks

5. If a spaceship circling Pluto uses 47 tanks of fuel, how many kilometers can it travel on one tank of fuel? 2000 km
   a) How many tanks of fuel must it use to travel around the circumference three times? 141 tanks

P.O. 6.05.02.01&.03

NAME: _____ CLASS: _____ DATE: _____

I. Estimate the quotient for problems 1-4.

1) $675\overline{)29,025}$

The quotient is greater than 40 but less than 50.

2) $302\overline{)9786}$

The quotient is greater than 30 but less than 40.

---

3) $219\overline{)43,720}$

The quotient is greater than 100 but less than 200.

4) $520\overline{)498,622}$

The quotient is greater than 900 but less than 1000.

II. Solve each of the following.

1) Mt. McKinley in the state of Alaska has an elevation of 20,320 feet. If a mountain climber climbs the mountain at the rate of 475 feet per hour, approximately how long will it take her to reach the top?
Approximately: 40 hr

2) One Friday evening a movie theater grossed $4667.25. If each person paid $5.25, approximately how many people attended the theater that evening?
Approximately: 1000 people

Do you remember?

Compare the following decimals using the symbols >, <, and =.

a. 0.45 < 0.7

b. 1.343 > 0.69

c. 0.568 < 0.80

d. 0.25 > 0.155

e. 0.85 = 0.850

f. 0.609 < 0.690

P.O. 6.05.02.01-.03

NAME: _____ CLASS: _____ DATE: _____

I. For examples 1-6, estimate the quotient, then solve and check the problem.

1. $209\overline{)13298}$ $63\frac{131}{209}$ estimate: 60 check

2. $420\overline{)376012}$ $895\frac{112}{420}$ estimate: 900 check

3. $118\overline{)9479}$ $80\frac{39}{118}$ estimate: 90 check

4. $365\overline{)20592}$ $56\frac{152}{365}$ estimate: 50 check

5. $922\overline{)278645}$ $302\frac{201}{922}$ estimate: 300 check

6. $815\overline{)39490}$ $48\frac{370}{815}$ estimate: 50 check

II. Solve the following problem.

The Littletown Daily News sold 212,795 newspapers in 1987. What was the average number of newspapers sold daily? _____

583 newspapers

III. Create and solve your own problem.

_____

Answers will vary.

_____

_____

SHARPENING YOUR SKILLS

Units 22, 23, 24

Name: _____ **Class:** _____ **Date:** _____

Directions: For items 1-8, mark your answers on the answer grid below.

1. The quotient of $38\overline{)3542}$ is between _____.

(a) 70 and 80 (c) 90 and 100

(b) 80 and 90 (d) 900 and 1000

2. Solve. Express the remainder as a fraction.

$$48\overline{)63,159}$$

(e) $1315\frac{39}{48}$ (g) $1315\frac{39}{63159}$

(f) $1315\frac{48}{39}$ (h) Not Here

3. Solve. Express the remainder as a fraction.

$124,563 \div 63 =$ ☐

(a) $10,997\frac{12}{63}$ (c) $1977\frac{12}{63}$

(b) $19,770\frac{12}{63}$ (d) Not Here

4. Find the missing digit.

$$83\overline{)421,308}\quad 5\square 76$$

(e) 0 (g) 5

(f) 3 (h) Not Here

5. $300\overline{)7248}$

(a) 204 R48 (c) 240 R4

(b) 24 R48 (d) Not Here

6. $600\overline{)42,308}$

(e) 700 R38 (g) 70 R308

(f) 70 R38 (h) Not Here

For items 7 and 8, estimate the quotient.

7. $156\overline{)284,129}$

The quotient is between _____ and _____.

(a) 1700, 1800 (c) 1900, 2000

(b) 1800, 1900 (d) Not Here

8. $243\overline{)563,148}$

The quotient is between _____ and _____.

(e) 2300, 2400 (g) 2100, 2200

(f) 2200, 2300 (h) Not Here

Answer Grid

1.	a	b	●	d	5.	a	●	c	d
2.	●	f	g	h	6.	e	f	●	h
3.	a	b	●	d	7.	a	●	c	d
4.	●	f	g	h	8.	●	f	g	h

P.O. 6.12.01.01-.02

NAME: _____ CLASS: _____ DATE: _____

A. For each set of numbers below, find the mode and the median.

	Mode	Median
(1) 2, 3, 8, 4, 6, 62, 1, 2, 2	2	3
(2) 14, 21, 60, 35, 11, 21, 14, 21	21	21
(3) 75, 80, 90, 85, 80	80	80
(4) 100, 112, 98, 210, 98, 114, 98, 104, 112	98	104
(5) 66, 72, 48, 39, 60, 66, 73, 45	66	63

B. Use the chart to answer each question.

High-Jumpers Basketball Team	
Player	Height
Sal	70 in.
Marty	75 in.
Bob	69 in.
Andy	70 in.
Lou	68 in.

1. What is the median height for the High-Jumpers basketball team? 70 in.

2. How much taller than the median height is Marty? 5 in.

3. Whose height is one inch less than the mode for this set of data? Bob

Do you remember?

Find the equivalent for each of the given units of measure.

1) 52 g = 0.052 kg 2) 280 mm = 2.8 dm 3) 200 cm = 2 m

4) 50 mg = 0.050 g 5) 2.4 L = 2400 mL 6) 4.25 km = 4250 m

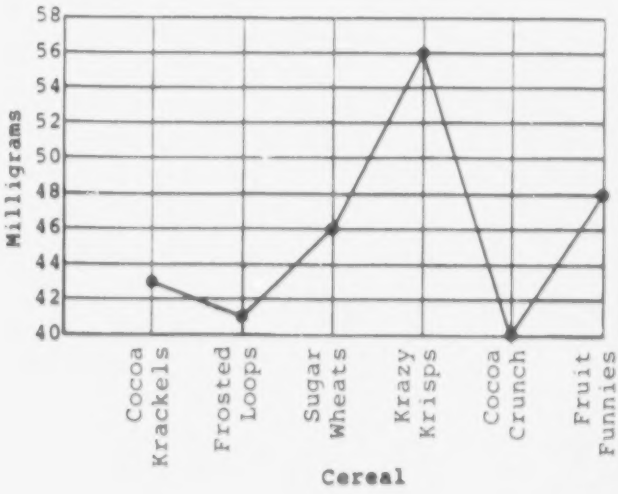
P.O. 6.14.09.01-.02

NAME: _____ CLASS: _____ DATE: _____

HOW SALTY IS IT?

Below are a line graph and a picture graph. Both of these graphs show the same data but in different ways.

MILLIGRAMS OF SODIUM IN CEREALS



MILLIGRAMS OF SODIUM IN CEREALS

Cocoa Krackels	○○○○○○○○○○○○○ ○○○○○○○ª
Frosted Loops	○○○○○○○○○○○○○ ○○○○○○ª
Sugar Wheats	○○○○○○○○○○○○○ ○○○○○○○○
Krazy Krisps	○○○○○○○○○○○○○ ○○○○○○○○○○○○○
Cocoa Crunch	○○○○○○○○○○○○○ ○○○○○
Fruit Funnies	○○○○○○○○○○○○○ ○○○○○○○○○

Each ○ = 2 milligrams

Use either graph to answer each question, and check your answer using the other graph.

1. Which cereal has the most sodium? Krazy Krisps
2. Which cereal has the least sodium? Cocoa Crunch
3. How many milligrams of sodium are in Cocoa Krackels? 43 mg Is this more or less than the amount of sodium in Sugar Wheats? less
4. Which cereal has 10 fewer milligrams of sodium than Krazy Krisps? Sugar Wheats
5. Which two cereals have nearly the same amount of sodium? Frosted Loops and Cocoa Crunch Which graph, in your opinion, makes it easier to find this information? Line graph
6. How many more milligrams of sodium does Fruit Funnies have than Sugar Wheats? 2 mg
7. What is the average amount of sodium in the six cereals? $45\frac{2}{3}$ mg What is the range in the amount of sodium found in the six cereals? 16 mg

P.O. 6.12.02.01

NAME: _____ CLASS: _____ DATE: _____

Use graph paper to construct double bar graphs based on the data below.

1. Number of Students in Class 6-306 and 6-301
Whose Heights Are from 5'0" to 5'3"

6-306	6-301
5'0" - 6	5'0" - 5
5'1" - 4	5'1" - 5
5'2" - 2	5'2" - 1
5'3" - 2	5'3" - 3

Remember: Title, Axis labels, Key

- -

2.

Computers Based in P.S. 391 and P.S. 615		
	P.S. 391	P.S. 615
Atari	4	0
Commodore	9	12
I.B.M.	7	15

Remember: Title, Axis labels, Key

CHALLENGE!

Use the information from the chart in number 1 to answer the following question:

What is the average height of all the students in the given set of data?

5ft $1\frac{1}{14}$ in.

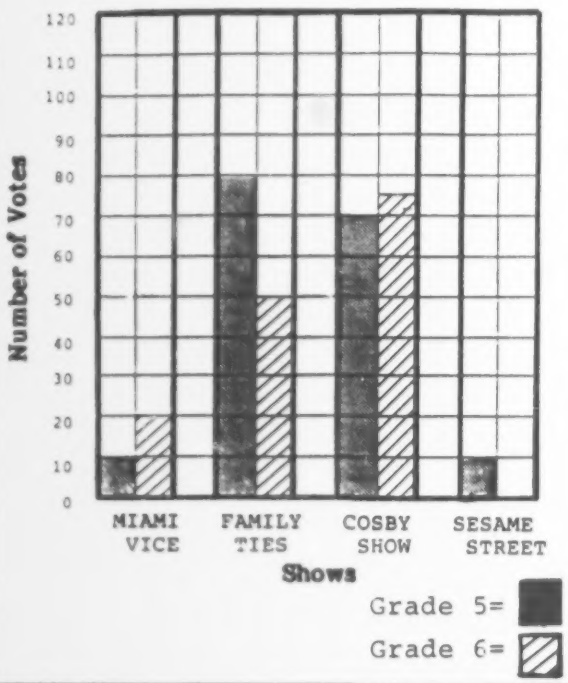
P.O. 6.12.02.02-.03

NAME: _____ CLASS: _____ DATE: _____

Use the graph to answer the following questions:

Favorite Television Shows

Grades 5 and 6



1. Which show was most popular with grade 5? Family Ties

2. What was the range in grade 6? 75

3. What was the mean in grade 5? $42\frac{1}{2}$

4. What shows were below the mean in grade 5? Miami Vice and Sesame Street

5. How many students in grade 6 voted? 145 students

Create and answer 3 questions based on the graph above.

I. Question: Answers will vary. Answer:

II. Question: _____ Answer:

III. Question: _____ Answer:

SHARPENING YOUR SKILLS

Units 25, 26, 27

Name: _____ Class: _____ Date: _____

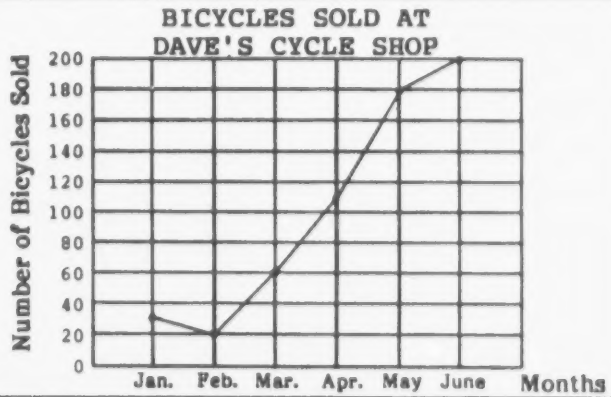
1. Find the mode and the median for the following data:

HIGH TEMPERATURES FOR WEEK OF JANUARY 10	
Sun.	29°
Mon.	24°
Tues.	30°
Wed.	26°
Thurs.	27°
Fri.	30°
Sat.	23°

mode = 30 median = 27

2. The median of 126, 132, 118, and 104 is 122.

Use the line graph below to answer questions 3 - 6.



3. How many more bicycles were sold in May than in April?

(a) 180 (c) 120

(b) 60 ● Not Here

4. Which month had the least increase from the previous month?

(e) January ● June

(f) March (h) Not Here

5. How many bicycles were sold during this 6-month period?

(a) 610 (c) 510

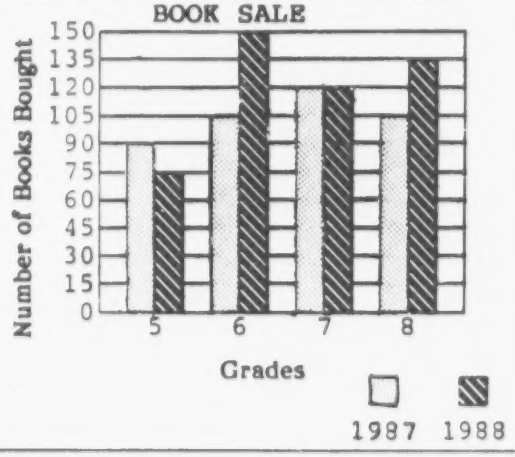
(b) 200 ● Not Here

6. What was the average number of bikes sold each month?

(e) 85 ● 100

(f) 110 (h) Not Here

Use the double bar graph below to answer questions 7 - 10.



7. How many more books were sold in 1988 than in 1987? 60

8. Which grade bought the most books during the two years? 6th grade

9. In 1987, how many more books were bought by the seventh grade than by the fifth grade? 30 more books

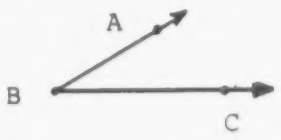
10. What was the average number of books bought by each grade in 1987? 105

P.O. 6.09.01.01-.02

NAME: _____ **CLASS:** _____ **DATE:** _____

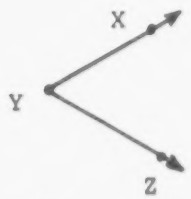
I. Complete each sentence.

(A)



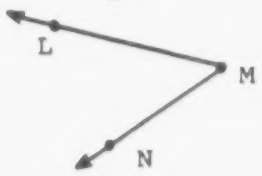
The two rays that meet at B, together form a(n) angle. B is the vertex of the angle.

(B)



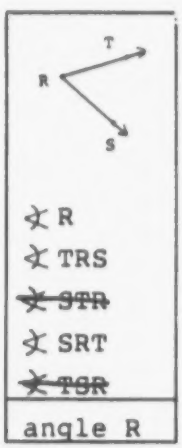
A(n) angle is a figure formed by 2 different rays which have the same endpoint. XY and ZY are both rays of the angle formed at Y.

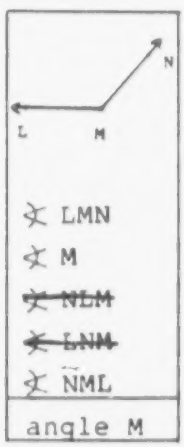
(C)

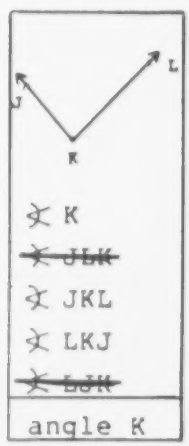


The endpoint for rays ML and MN is called the vertex. An angle may be named by its vertex. We may also name an angle by three points with the vertex in the middle. The model to the left may be named as ∠M, ∠LMN or ∠NML.

II. Draw a line through the angle name(s) which do not belong.

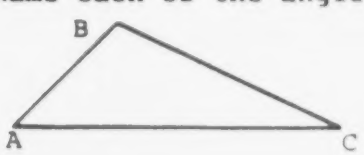






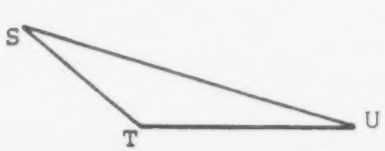
III. Name each of the angles in the triangles three different ways.

(A)



a) angle A ∠A ∠BAC ∠CAB
b) angle B ∠B ∠ABC ∠CBA
c) angle C ∠C ∠ACB ∠BCA

(B)

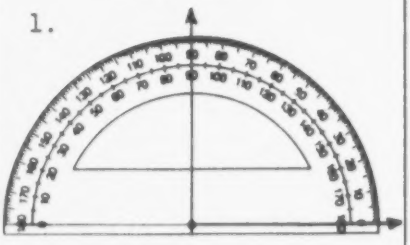


a) angle S ∠S ∠TSU ∠UST
b) angle T ∠T ∠STU ∠UTS
c) angle U ∠U ∠SUT ∠TUS

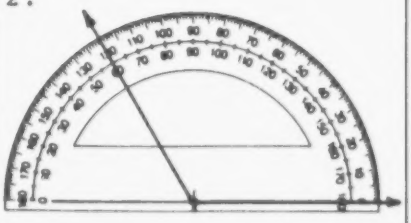
P.O. 6.09.01.03 & .05

NAME: _____ CLASS: _____ DATE: _____

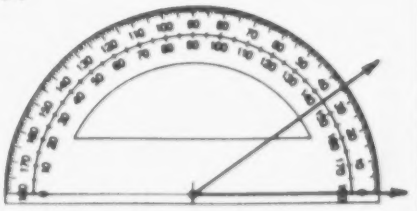
I. Find the measure of each angle and identify the type of angle formed.

1. 

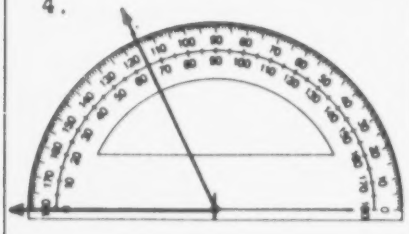
angle measurement: 90°
angle type: right

2. 

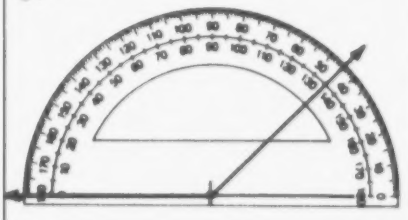
angle measurement: 120°
angle type: obtuse

3. 

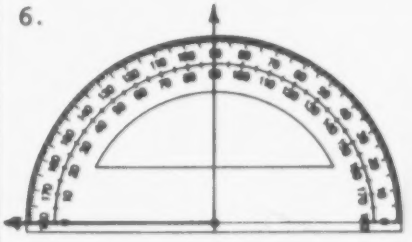
angle measurement: 35°
angle type: acute

4. 

angle measurement: 65°
angle type: acute

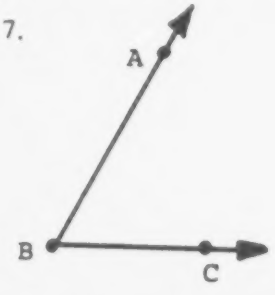
5. 

angle measurement: 135°
angle type: obtuse

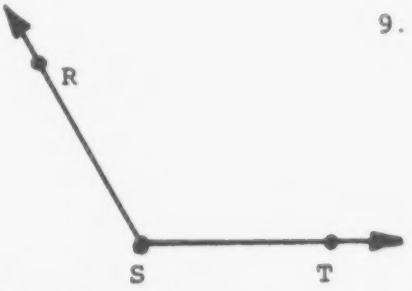
6. 

angle measurement: 90°
angle type: right

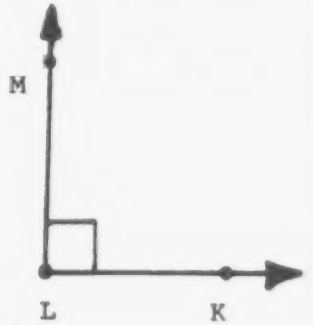
II. Estimate and measure each angle. Check which type of angle is formed in each case.

7. 

* degrees (est.)
60° degrees measured
___ right angle
___ obtuse angle
✓ acute angle

8. 

* degrees (est.)
120° degrees measured
___ right angle
✓ obtuse angle
___ acute angle

9. 

90° degrees (est.)
90° degrees measured
✓ right angle
___ obtuse angle
___ acute angle

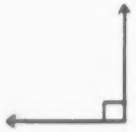
* Estimates may vary.

P.O. 6.09.01.04&.06-.07

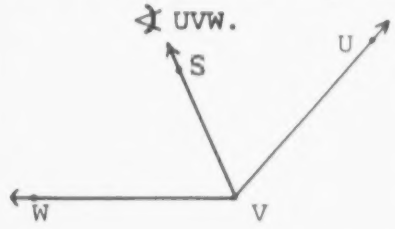
NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

I. Estimate whether the following angles are right, acute, obtuse, or straight angles.

					
a. acute	b. obtuse	c. straight	d. right	e. acute	f. obtuse

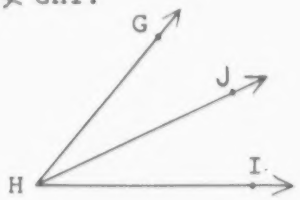
II. 1. Construct ray VS to bisect ∠UVW.



measure of ∠UVW = 130°

measure of ∠UVS = 65°

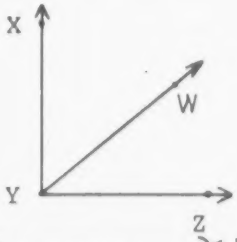
2. Construct ray HJ to bisect ∠GHI.



measure of ∠GHI = 50°

measure of ∠JHI = 25°

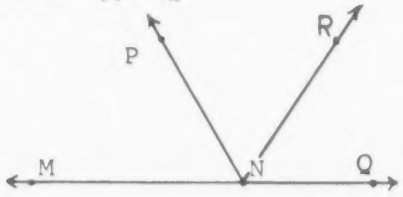
3. Bisect ∠Y.



New angle name: ∠WYZ

New angle measurement: 45°

4. Construct ray NR to bisect ∠PNQ.



measure of ∠PNQ = 120°

measure of ∠PNR = 60°

CHALLENGE!

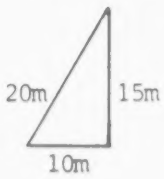
Draw a triangle, then use your protractor to bisect each of its angles.

Answers will vary.

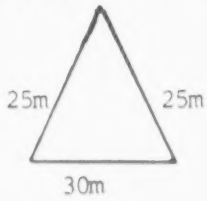
P.O. 6.09.02.01-.02

NAME: _____ CLASS: _____ DATE: _____

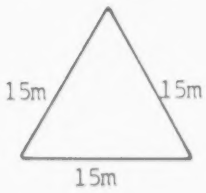
I. Classify each triangle according to the lengths of its sides.



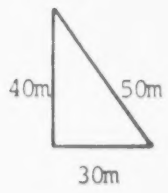
1. scalene



2. isosceles

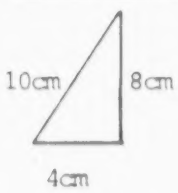


3. equilateral



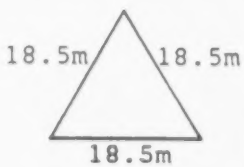
4. scalene

5. equilateral



6. scalene

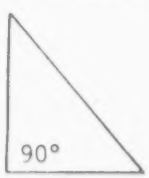
7. isosceles



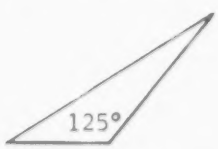
8. equilateral

II. Classify each triangle according to the measures of its angles.

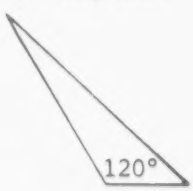
1. acute



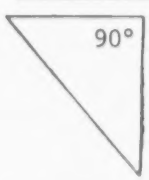
2. right



3. obtuse

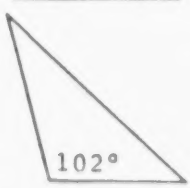


4. obtuse

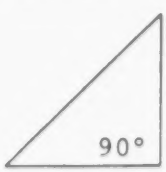


5. right

6. acute



7. obtuse



8. right

III. Write the missing word.

a) A triangle which has sides that are all equal in length is classified as a(n) equilateral triangle.

b) A(n) scalene triangle has no two sides equal in length.

c) A triangle which has two sides equal is a(n) isosceles triangle.

d) A(n) obtuse triangle has an angle greater than 90°.

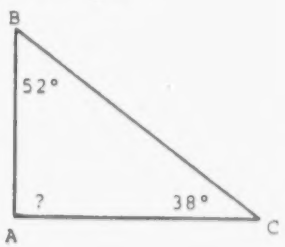
P.O. 6.09.02.03-.04

NAME: _____ CLASS: _____ DATE: _____

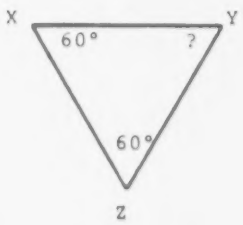
I. What is true about the measures of the three angles of any triangle? _____

The sum of their measures is always 180°.

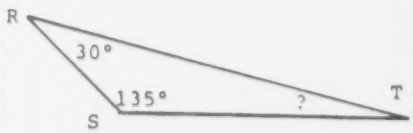
II. Find the measure of the missing angle. Two angles are completed for you.



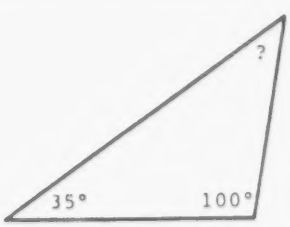
1. 90°



2. 60°

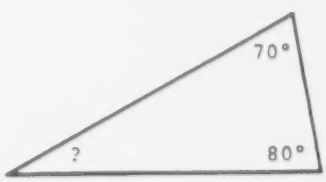


3. 15°

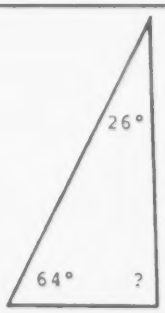


4. 45°

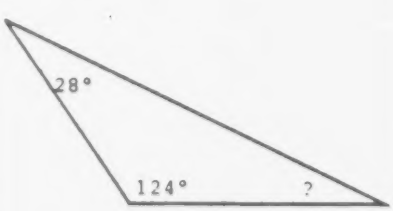
5. 30°



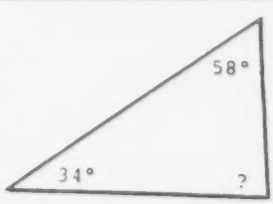
6. 30°



7. 90°



8. 28°

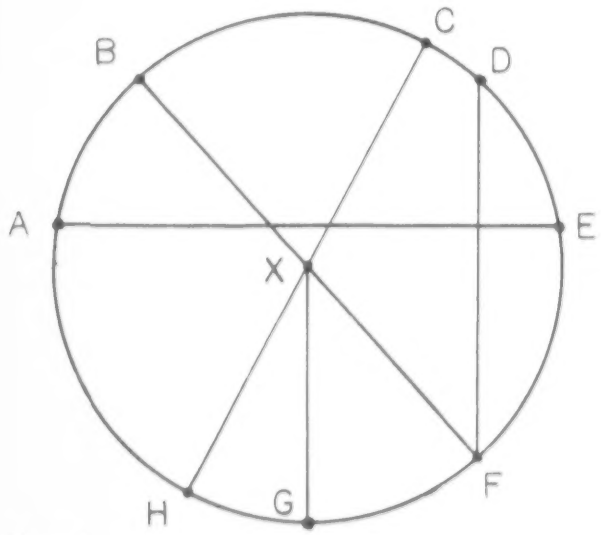


9. 88°

P.O. 6.14.10.01-.03

NAME: _____ CLASS: _____ DATE: _____

Using the diagram, identify each line segment as a radius, chord or diameter of the circle and then fill in the missing term in each sentence.



Point X is the center of the circle.

1. $\overline{AE}$ is a chord of the circle
2. $\overline{BX}$ is a radius of the circle
3. $\overline{CH}$ is a diameter of the circle
4. $\overline{CX}$ is a radius of the circle
5. $\overline{DF}$ is a chord of the circle
6. $\overline{FB}$ is a diameter of the circle
7. $\overline{GX}$ is a radius of the circle
8. $\overline{HX}$ is a radius of the circle

Do you remember?

Find the mode and median for the following set of data.

Bowling Scores of 6-204's Bowling Team:
90,89,90,89,86,92,90,92,88

Mode: 90 Median: 90

P.O. 6.14.10.04-.06

NAME: _____ CLASS: _____ DATE: _____

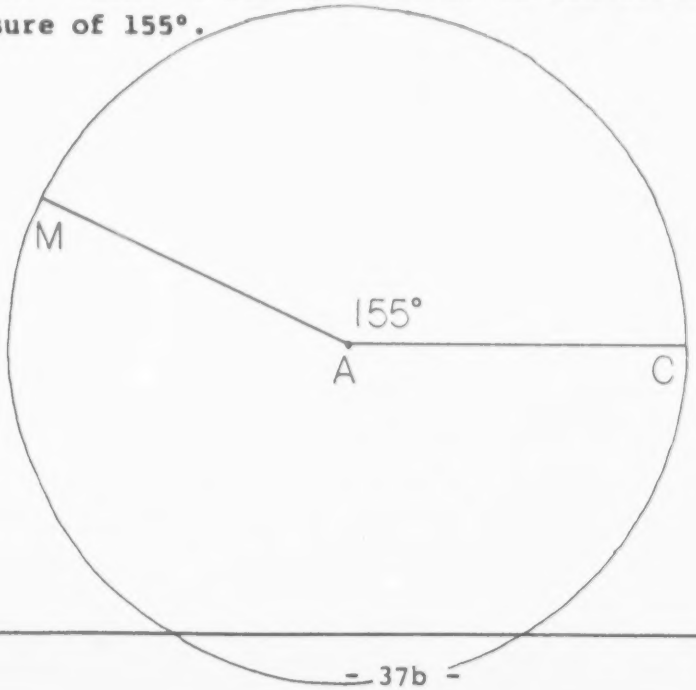
Match each diameter for a circle with the approximate circumference for the circle.

length of diameter	approximate circumference
a. 12 in.	25.1 in.
b. 5 in.	78.5 in.
c. 8 in.	37.1 in.
d. 25 in.	62.8 in.
e. 15 in.	15.7 in.
f. 20 in.	47.1 in.

Complete each sentence.

1. The circumference is the distance around a circle.
2. The circumference is approximately three times the length of the diameter.
3. The circumference is approximately six times the length of the radius.

Use a compass to construct a circle with a 2-inch radius. Label the center point A. Then use your protractor to construct central angle MAC having a measure of 155°.

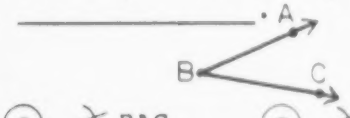


SHARPENING YOUR SKILLS

Units 28, 29, 30

Name: _____ **Class:** _____ **Date:** _____

1. The angle below may be named

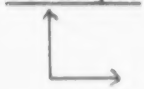


(a) ∠BAC (c) ∠A
(●) ∠ABC (d) Not Here

2. A straight angle measures _____ degrees.

(a) 90° (●) 180°
(b) 360° (d) 100°

3. On the line below each angle, write acute, obtuse, right, or straight to describe the angle


right

obtuse

acute

straight

4. An obtuse angle measures more than 90 degrees but less than 180°.

5. On the line below each triangle, write equilateral, isosceles, or scalene to describe the triangle.

equilateral scalene isosceles

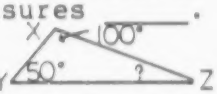
6. Classify each triangle below as right, acute, or obtuse.

acute obtuse right

7. The sum of the measures of the angles of any triangle is _____.

(a) 90° (c) 360°
(b) 100° (●) 180°

8. In the triangle below, ∠Z measures _____.



(●) 30° (g) 180°
(f) 50° (h) Not Here

9. In which circle below has a radius been drawn?

(a) (●) (c) (d)

10. In which circle below has a diameter been drawn?

(●) (f) (g) (h)

11. In which circle below has a chord been drawn?

(a) (●) (c) (d)

12. The distance around a circle is called the circumference.

P.O. 6.12.03.01-.02

NAME: _____ CLASS: _____ DATE: _____

I.A. Find the amount of money in each example.

$\frac{1}{5}$ of \$250 = \$50 $\frac{2}{11}$ of \$440 = \$80

$\frac{2}{6}$ of \$36 = \$12 $\frac{3}{5}$ of \$75 = \$45

$\frac{2}{3}$ of \$480 = \$320 $\frac{4}{9}$ of \$81 = \$36

B. Find the number of degrees in each example.

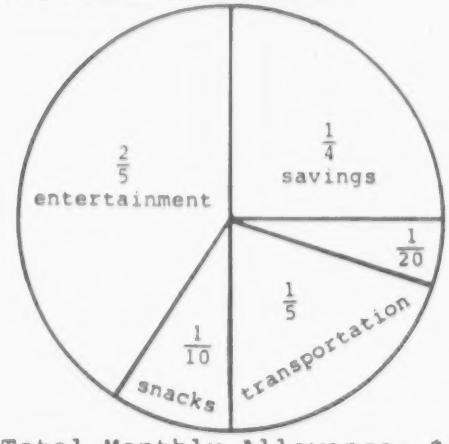
$\frac{1}{5}$ of 360° = 72° $\frac{6}{18}$ of 360° = 120°

$\frac{3}{4}$ of 360° = 270° $\frac{5}{9}$ of 360° = 200°

$\frac{1}{2}$ of 360° = 180° $\frac{5}{6}$ of 360° = 300°

II. Use this circle graph to answer the questions below.

MARY K.'s ALLOWANCE



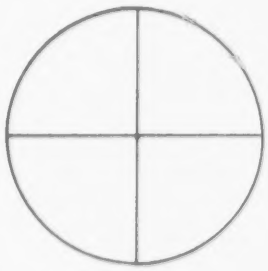
Total Monthly Allowance: \$40

Mary spent the following amount of money in each category:

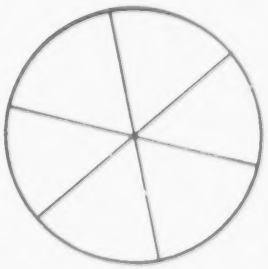
1. entertainment \$16
2. transportation \$8
3. school supplies \$2
4. snacks \$4
5. How much more was spent on entertainment than on snacks and school supplies combined? \$10

III. Below are circles A and B. Divide Circle A into 4 equal sectors. Divide Circle B into 6 equal sectors.

Circle A



Circle B



Answer the following questions about the circles above.

1. If circle A represents a total of \$240, how much money does one sector represent? \$60
2. If circle B represents a total of \$240, how much money do 5 sectors represent? \$200
3. How many degrees are there in the central angle of a sector in circle A? 90°
4. How many degrees are in a central angle in a sector in circle B? 60°

P.O. 6.12.03.01&.03

NAME: _____ CLASS: _____ DATE: _____

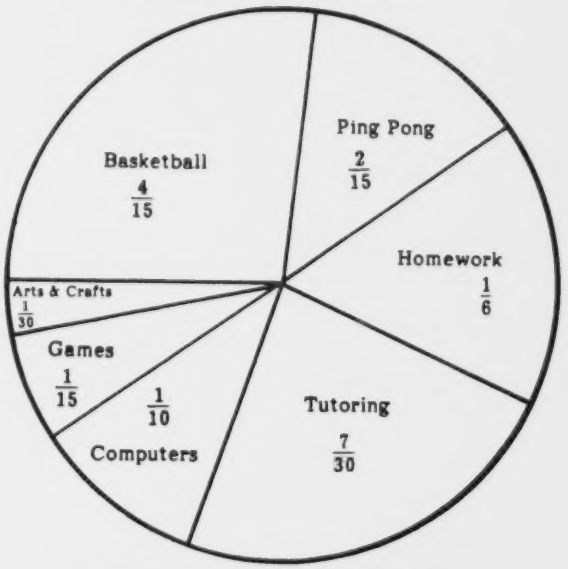
The table below shows data about P.S. 76's "After School Program". Complete the data and construct a circle graph below. (Use your protractor!)

After School Program

P.S. 76

Activity	Number of Students	Fraction (to lowest terms)	Central Angle
Basketball	40	$\frac{40}{150} = \frac{4}{15}$	$\frac{4}{15}$ of 360° = 96°
Ping Pong	20	$\frac{20}{150} = \frac{2}{15}$	$\frac{2}{15}$ of 360° = 48°
Homework	25	$\frac{25}{150} = \frac{1}{6}$	$\frac{1}{6}$ of 360° = 60°
Tutoring	35	$\frac{35}{150} = \frac{7}{30}$	$\frac{7}{30}$ of 360° = 84°
Computers	15	$\frac{15}{150} = \frac{1}{10}$	$\frac{1}{10}$ of 360° = 36°
Games	10	$\frac{10}{150} = \frac{1}{15}$	$\frac{1}{15}$ of 360° = 24°
Arts & Crafts	5	$\frac{5}{150} = \frac{1}{30}$	$\frac{1}{30}$ of 360° = 12°
Total	150		

P.S. 76's AFTER SCHOOL PROGRAM



TOTAL : 150 STUDENTS

P.O. 6.14.11.01-.02

NAME: _____ CLASS: _____ DATE: _____

Use the correct order of operations to solve each example. Use your answers to solve the riddle.

① $3^2 - 4 \times 2 + 6 \times 5 =$ ☐

Solution = 31 (A)

② $3 \times 8^2 + 2 + 2 =$ ☐

Solution = 193 (S)

③ $(3^2 - 4) \times 2 + 6 \times 5 =$ ☐

Solution = 40 (C)

④ $3 \times (8^2 + 2) + 2 =$ ☐

Solution = 99 (I)

⑤ $6^2 + 7 \times (2 + 8) - 6 =$ ☐

Solution = 100 (N)

⑥ $63 - 17 \times 2 - 7 \times 4 =$ ☐

Solution = 1 (T)

⑦ $5 \times 10 \div (7^2 + 1) - 1 =$ ☐

Solution = 0 (F)

⑧ How are people who solve this riddle like people who root for the Yankees and the Mets?

They are

F A N - T A S T I C

0 31 100 1 31 193 1 99 40

P.O. 6.11.01.01-.02

NAME: _____ CLASS: _____ DATE: _____

I. Write a related subtraction sentence. Then find the difference and check your work by substituting the value for the variable in the original example.

				check
a.	5 + a = 9	9 - 5 = a	a = 4	5 + 4 = 9
b.	9 + c = 14	14 - 9 = c	c = 5	9 + 5 = 14
c.	m + 3 = 10	10 - 3 = m	m = 7	7 + 3 = 10
d.	8 + p = 15	15 - 8 = p	p = 7	8 + 7 = 15
e.	n + 2 = 11	11 - 2 = n	n = 9	9 + 2 = 11

II. Use the inverse operation to find n and then check your work.

				check
a.	6 x n = 30	30 ÷ 6 = n	n = 5	6 x 5 = 30
b.	n x 8 = 56	56 ÷ 8 = n	n = 7	7 x 8 = 56
c.	9 x n = 27	27 ÷ 9 = n	n = 3	9 x 3 = 27
d.	n + 7 = 4	4 x 7 = n	n = 28	28 ÷ 7 = 4
e.	n ÷ 12 = 3	3 x 12 = n	n = 36	36 ÷ 12 = 3
f.	8 + n = 15	15 - 8 = n	n = 7	8 + 7 = 15
g.	n - 5 = 7	7 + 5 = n	n = 12	12 - 5 = 7
h.	n + 5 = 7	7 x 5 = n	n = 35	35 ÷ 5 = 7

III. Select the open sentence you could use to solve each problem.

1. Rene has 35 stamps in her U.S. Stamp Collection. How many more does she need to complete the 50 stamp set collection?
   (a) 50 + n = 50 (c) n - 35 = 50
   (b) 35 + n = 85 (d) 35 + n = 50

2. Allie had 72 autographs of baseball stars. She gave some away to her brothers, sisters, and friends. Now she has 50 left. How many did she give away?
   (a) n - 72 = 50 (c) 72 - n = 50
   (b) n - 50 = 72 (d) Not Given

3. The school teams saved $375 for their trip to Yankee Stadium. The trip will cost $500. How much more money is needed for the trip?
   (a) $375 + n = $500 (c) $875 - n = $500
   (b) $375 + n = $875 (d) n - $375 = $500

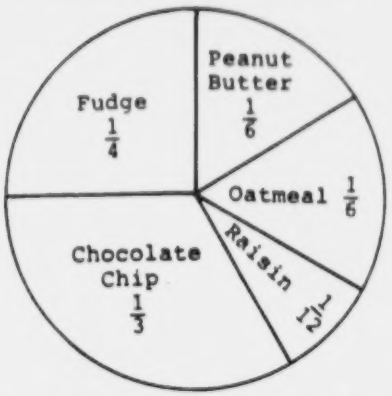
SHARPENING YOUR SKILLS

Units 31, 32, 33

Name: _____ Class: _____ Date: _____

Use the graph below to answer questions 1 - 3.

BOXES OF SCOUT COOKIES SOLD



1. How many boxes of fudge cookies were sold? 300
2. How many more boxes of chocolate chip cookies were sold than peanut butter cookies? 200
3. What fractional part of the cookies sold were raisin cookies? 1/12

Total Number of Boxes Sold: 1200

4. $5^2 - 12 + 42 =$ _____

(a) 34 (c) 18
(b) 5 ● Not Here

5. $17 - 2 \times 5 + 3 =$ _____

(e) 78 ● 10
(f) 120 (h) Not Here

6. $(3^2 + 6) \times 2 + 3 =$ _____

● 10 (c) 7
(b) 8 (d) Not Here

7. $4 \times (5 + 7^2) - 8 =$ _____

● 208 (g) 68
(f) 61 (h) Not Here

8. $n + 5 = 30$ $n = \square$

(a) 35 (c) 6
(b) 20 ● Not Here

9. $a + 9 = 9$ $a = \square$

● 81 (g) 72
(f) 18 (h) Not Here

10. $12 \times m = 132$ $m = \square$

(a) 120 ● 11
(b) 12 (d) Not Here

11. Which open sentence can be used to solve this problem?

Jessica had $179 in the bank. She deposited more money this week. Now she has $200 in the bank. How much money did she put in the bank this week?

(e) $179 + $200 = N
(f) N - $200 = $179
● $179 + N = $200
(h) Not Here

100

P.O. 6.13.01.01-.02

NAME: _____ CLASS: _____ DATE: _____

1. Four sixth grade classes are planning an end-term spring trip to a museum in Philadelphia, Pennsylvania. There are 29 children in each of the classes going on the trip. In addition to the four classroom teachers, eight parents will accompany the students. The cost of renting a bus for the trip is $140. They are renting two buses. The cost of admission to the museum and lunch is $6.00 for each adult and $4.00 for each student. How much will this entire trip cost?

   Here is my plan and solution to the problem:

   Steps will vary.

   Solution: $816.00

2. Create and solve a multistep problem using the following information:

   Steven's father gave him $50 for his birthday and told him he could purchase anything of his choice with it. He went to the sporting goods store and saw the following sign:

   ATTENTION -- BOYS and GIRLS

   SALE!

   NeeNok Athletic Shoes -- $29.95 a pair
   Jogging Shorts -- $2.99 each or 2 for $5.00
   Tank Tops -- $1.99 each or 2 for $3.00
   Tube Socks -- $1.99 per pair or 6 pair for $5.00

   Problem: **Answers will vary.**

   Solution: _____

P.O. 6.13.02.01-.02

NAME: _____ CLASS: _____ DATE: _____

Use trial and error to solve the following problem.

Five members of Joseph's family took a trip from New York City to Miami, Florida. They paid a total of $784 for round trip airfare. If the cost of roundtrip airfare was $196 for adults and half price for children under the age of 12, how many members of Joseph's family paid adult airfare? How many children under 12 went on the trip?

Trial 1: Trials will vary.

Solution:

Three members of Joseph's family paid adult airfair; two children under 12 went on the trip.

Create and solve a word problem using trial and error.

Problem: Answers will vary.

Trial 1: _____

CHALLENGE!

Select digits between 1 and 9 to create numbers that complete the following number sentence. No two digits can be alike in your final solution.

$(5 + \boxed{3}) \times (\boxed{6} + 4) = 80$

P.O. 6.14.12.01-.03

NAME: _____ CLASS: _____ DATE: _____

I. Solve and circle the correct answer in lowest (simplest) terms.

1. $4 \times \frac{1}{3} =$ _____

   (a) $\frac{4}{12}$ (b) $1\frac{1}{3}$ (c) $1\frac{1}{4}$

2. $6 \times \frac{2}{3} =$ _____

   (a) $\frac{12}{18}$ (b) $\frac{2}{18}$ (c) 4

3. $5 \times \frac{3}{7} =$ _____

   (a) $\frac{3}{35}$ (b) $2\frac{1}{7}$ (c) $1\frac{7}{7}$

4. $3 \times \frac{9}{10} =$ _____

   (a) $2\frac{7}{10}$ (b) $\frac{9}{30}$ (c) $3\frac{9}{10}$

II. Write and solve a multiplication example using the following facts:

5. $\frac{1}{3}$ of the 12 eggs are cracked.

   $\frac{1}{3} \times 12 = \frac{12}{3} = 4$

6. $\frac{1}{4}$ of the 8 apples have worms.

   $\frac{1}{4} \times 8 = \frac{8}{4} = 2$

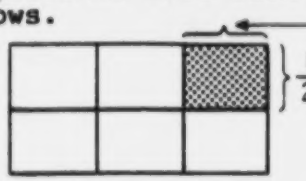
7. $\frac{1}{5}$ of the 10 faces are dirty.

   $\frac{1}{5} \times 10 = \frac{10}{5} = 2$

8. $\frac{1}{3}$ of the 15 children have no cavities.

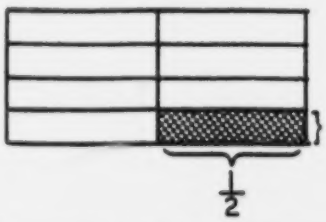
   $\frac{1}{3} \times 15 = \frac{15}{3} = 5$

III. Write and solve a multiplication example which represents what each picture shows.



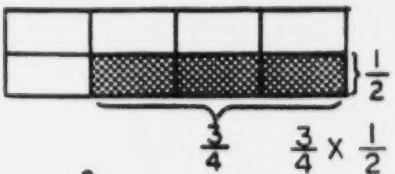
$\frac{1}{3} \times \frac{1}{2} =$

$\frac{1}{3}$ of $\frac{1}{2} = \frac{1}{6}$

9. 

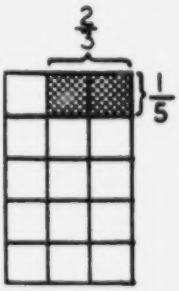
$\frac{1}{2} \times \frac{1}{4} =$

$\frac{1}{2}$ of $\frac{1}{4} = \frac{1}{8}$

10. 

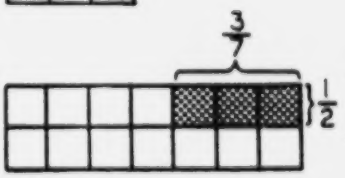
$\frac{3}{4} \times \frac{1}{2} =$

$\frac{3}{4}$ of $\frac{1}{2} = \frac{3}{8}$

11. 

$\frac{2}{3} \times \frac{1}{5} =$

$\frac{2}{3}$ of $\frac{1}{5} = \frac{2}{15}$

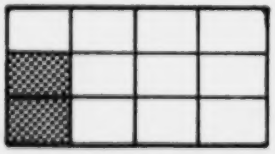
12. 

$\frac{3}{7} \times \frac{1}{2} =$

$\frac{3}{7}$ of $\frac{1}{2} = \frac{3}{14}$

13. Complete this picture (rectangle) to demonstrate this multiplication example:

$\frac{2}{3}$ of $\frac{1}{4} = \boxed{\frac{2}{12}}$



SHARPENING YOUR SKILLS

Units 34, 35, 36

Name: _____ Class: _____ Date: _____

1. At Burger House, a family ordered 6 hamburgers at $1.50 each, 5 sodas at $.90 each, and 5 orders of fries at $1.10 each. How much did this family spend at Burger House?

$19.00

2. At the restaurant, Jesse had a sandwich for $2.20 and a soda for $1.05. Jeanne had a sandwich for $2.50 and juice for $1.25. If they shared the cost equally, how much did each pay?

$3.50

3. Anita has 17 coins. Some are dimes and some are nickels. The total value of the coins is $1.40. How many dimes and how many nickels does she have?

11 dimes and 6 nickels

4. A carton of paper clips weighs 4 pounds. A carton of staples weighs 8 pounds. The Sunny Stationery Store received a shipment of paper clips and staples that weighed a total of 72 pounds. How many cartons of each did they receive if there were 13 cartons in all?

8 cartons of paper clips

5 cartons of staples

5. $10 \times \frac{1}{2} =$ _____

(a) 10 ● 5

(b) 20 (d) Not Here

6. $3 \times \frac{4}{7} =$ _____

(e) 12 (g) $5\frac{1}{7}$

● $1\frac{5}{7}$ (h) Not Here

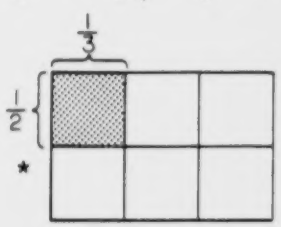
7. $\frac{1}{3} \times 21 =$ _____

(a) 63 (c) $2\frac{1}{3}$

(b) 6 ● Not Here

8. Draw a picture to show that:

$\frac{1}{2} \times \frac{1}{3} = \frac{1}{2}$ of $\frac{1}{3} = \frac{1}{6}$



* Pictures may vary.

P.O. 6.06.02.01.-.02

NAME: _____ CLASS: _____ DATE: _____

I. Find the fractional part of each number.

1. $\frac{1}{4}$ of 12 = 3
2. $\frac{1}{2}$ of 12 = 6
3. $\frac{1}{3}$ of 12 = 4
4. $\frac{1}{6}$ of 12 = 2
5. $\frac{1}{4}$ of 20 = 5
6. $\frac{1}{2}$ of 20 = 10
7. $\frac{1}{5}$ of 20 = 4
8. $\frac{1}{10}$ of 20 = 2

II. Write the missing number in each box to complete each fraction.

1. If $\frac{1}{3}$ of 3 = 1, then $\frac{1}{3}$ of $\frac{3}{4}$ = $\frac{1}{4}$
2. If $\frac{1}{4}$ of 8 = 2, then $\frac{1}{4}$ of $\frac{8}{9}$ = $\frac{2}{9}$
3. If $\frac{1}{3}$ of 9 = 3, then $\frac{1}{3}$ of $\frac{9}{11}$ = $\frac{3}{11}$
4. If $\frac{1}{2}$ of 6 = 3, then $\frac{1}{2}$ of $\frac{6}{8}$ = $\frac{3}{8}$

III. Change each fraction to a whole number times its unit fraction.

1. $\frac{4}{5}$ = $4 \times \frac{1}{5}$
2. $\frac{3}{7}$ = 3 x $\frac{1}{7}$
3. $\frac{2}{5}$ = 2 x $\frac{1}{5}$
4. $\frac{7}{8}$ = 7 x $\frac{1}{8}$
5. $\frac{3}{5}$ = 3 x $\frac{1}{5}$
6. $\frac{6}{9}$ = 6 x $\frac{1}{9}$
7. $\frac{5}{13}$ = 5 x $\frac{1}{13}$
8. $\frac{4}{27}$ = 4 x $\frac{1}{27}$

IV. Multiply each pair of fractions using this method:

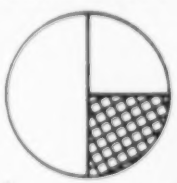
1. $\frac{2}{3} \times \frac{3}{5}$
   = 2 x $\frac{1}{3}$ of $\frac{3}{5}$
   = 2 x $\frac{1}{5}$
   = $\frac{2}{5}$

2. $\frac{3}{4} \times \frac{4}{7}$
   = 3 x $\frac{1}{4}$ of $\frac{4}{7}$
   = 3 x $\frac{1}{7}$
   = $\frac{3}{7}$

3. $\frac{2}{5} \times \frac{10}{11}$
   = 2 x $\frac{1}{5}$ of $\frac{10}{11}$
   = 2 x $\frac{2}{11}$
   = $\frac{4}{11}$

4. $\frac{3}{5} \times \frac{8}{10}$
   = 3 x $\frac{1}{5}$ of $\frac{8}{10}$
   = 3 x $\frac{1}{5}$ x $\frac{40}{50}$
   = 3 x $\frac{8}{50}$
   = $\frac{12}{25}$

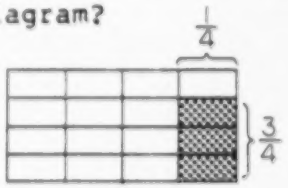
V. Which of the following does this picture show?



(a) $\frac{1}{2}$ of $\frac{1}{4}$ ● $\frac{1}{2}$ of $\frac{1}{2}$

(b) $\frac{1}{3}$ of 1 whole (d) $\frac{1}{4}$ of $\frac{1}{2}$

Which equation is expressed by this diagram?



(e) $\frac{1}{16} \times \frac{3}{4} = \square$ (g) $\frac{1}{16} \times \frac{1}{4} = \square$

● $\frac{3}{4} \times \frac{1}{4} = \square$ (h) $\frac{1}{4} \times \frac{3}{16} = \square$

P.O. 6.06.02.03-.04

NAME: _____ CLASS: _____ DATE: _____

I. Match the examples in column A with the products in column B.

A		B
c 1.	$\frac{3}{4} \times \frac{1}{2}$	a. $\frac{3}{20}$
d 2.	$\frac{4}{5} \times \frac{2}{3}$	b. $\frac{2}{5}$
g 3.	$3 \times \frac{3}{10}$	c. $\frac{3}{8}$
a 4.	$\frac{3}{4} \times \frac{1}{5}$	d. $\frac{8}{15}$
f 5.	$\frac{5}{9} \times \frac{1}{2}$	e. $\frac{9}{35}$
~~j~~ 6.	$\frac{3}{6} \times \frac{3}{5}$	f. $\frac{5}{18}$
i 7.	$\frac{2}{3} \times \frac{5}{7}$	g. $\frac{9}{10}$
b 8.	$2 \times \frac{1}{5}$	h. $\frac{5}{81}$
e 9.	$\frac{3}{5} \times \frac{3}{7}$	i. $\frac{10}{21}$
h 10.	$\frac{1}{9} \times \frac{5}{9}$	j. $\frac{3}{10}$

II. Darken the circle with the correct answer.

1. $\frac{9}{11} \times \frac{3}{4} = \square \times \frac{9}{11}$

(a) $\frac{4}{3}$ ● $\frac{3}{4}$ (c) $\frac{9}{11}$ (d) $\frac{11}{9}$

2. $\square \times \frac{2}{3} = \frac{2}{3} \times \frac{3}{5}$

● $\frac{3}{5}$ (f) $\frac{2}{5}$ (g) $\frac{2}{3}$ (h) $\frac{3}{2}$

3. $\frac{4}{9} \times \square = 2 \times \frac{4}{9}$

(a) $\frac{8}{9}$ ● 2 (c) 4 (d) 9

III. Fill in the missing word or darken the circle with the correct answer.

1. $\frac{2}{3} \times \frac{3}{5} = \frac{3}{5} \times \frac{2}{3}$ is an example of the commutative property of multiplication.

2. Which example does not show the commutative property of multiplication?

(a) $\frac{2}{3} \times \frac{1}{4} = \frac{1}{4} \times \frac{2}{3}$

(b) $\frac{1}{3} \times \frac{2}{5} = \frac{2}{5} \times \frac{1}{3}$

● $\frac{1}{2} \times 2 = \frac{1}{2} \times 2$

(d) $\frac{1}{4} \times 3 = 3 \times \frac{1}{4}$

3. Which missing number will make this example true?

$\frac{2}{3} \times \frac{2}{5} = \frac{\square}{5} \times \frac{2}{3}$

(e) 3 (f) 4 (g) 1 ● Not Here

IV. Find each product by taking the products of the numerators and the denominators.

$\frac{2}{5} \times \frac{3}{7} = \frac{6}{35}$ $\frac{4}{7} \times \frac{3}{9} = \frac{4}{21}$

$\frac{3}{4} \times \frac{3}{4} = \frac{9}{16}$ $\frac{7}{8} \times \frac{5}{9} = \frac{35}{72}$

V. What is the missing fraction?

$\frac{5}{6} \times \frac{4}{5} = \frac{20}{30} = \frac{2}{3}$

P.O. 6.06.02.05

NAME: _____ CLASS: _____ DATE: _____

I. A cake recipe calls for $\frac{5}{6}$ cup of flour, $\frac{2}{3}$ cup of water, 2 eggs, and $\frac{1}{3}$ cup of sugar.

If you decide to bake only half a cake, how much (many)

a. flour will you need? $\frac{5}{12}$ cup

b. water will you need? $\frac{1}{3}$ cup

c. eggs will you need? 1

d. sugar will you need? $\frac{1}{6}$ cup

II. There are 25 students in Ms. Greenwald's class. If $\frac{3}{5}$ of the students are girls,

a. what fraction of the students are boys? $\frac{2}{5}$

b. how many boys are there in Ms. Greenwald's class? 10

If $\frac{2}{3}$ of the girls are absent,

c. how many girls are absent? 10 present? 5

d. what fraction of the girls are present? $\frac{1}{3}$

III. Mr. Lopez, our teacher, has the following four cards:

A. $\boxed{\frac{3}{7}}$ B. $\boxed{\frac{2}{5}}$ C. $\boxed{\frac{1}{3}}$ D. $\boxed{\frac{4}{5}}$

1) If he asks us for the product of cards A and B, what is the answer? $\frac{6}{35}$

2) If he asks for half the value of card D, what is the answer? $\frac{2}{5}$

3) Using cards C and A, which would be an example of the commutative property of multiplication?

(a) $\frac{1}{3} \times \frac{2}{5} = \frac{2}{5} \times \frac{1}{3}$ (c) $\frac{3}{7} \times \frac{1}{3} = \frac{3}{7} \times \frac{1}{3}$

(b) $\frac{3}{7} + \frac{1}{3} = \frac{1}{3} + \frac{3}{7}$ ● $\frac{1}{3} \times \frac{3}{7} = \frac{3}{7} \times \frac{1}{3}$

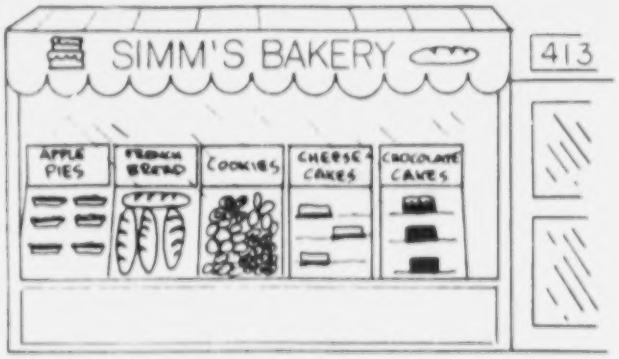
4) To get a product of $\frac{8}{25}$, which two cards did he show the class?

(e) A and B ● B and D (g) A and D (h) B and C

P.O. 6.06.03.01&.05

NAME: _____ CLASS: _____ DATE: _____

Directions: Solve each word problem in the space next to it. The first one has been done for you.



1. How many half-loaves are in 3 loaves of bread?

$3 + \frac{1}{2} = \frac{6}{2} + \frac{1}{2} = 6 + 1 = 6$

2. If each of 3 apple pies were divided into eighths, how many customers could buy $\frac{3}{8}$ each?

8 customers

3. If 8 chocolate cakes were divided into sixths, how many $\frac{2}{6}$ pieces would we be able to give to homeless people?

24 pieces

4. If a dozen cupcakes were cut in half and packaged three halves to a bag, how many bags would there be?

8 bags

5. How many $\frac{2}{3}$ servings are in 12 chocolate cakes?

18 servings

6. How many $\frac{1}{4}$ portions are there in 5 loaves of bread?

20 portions

7. Eight cheesecakes are divided into thirds. How many $\frac{2}{3}$ servings are there?

12 servings

8. YOUR TURN

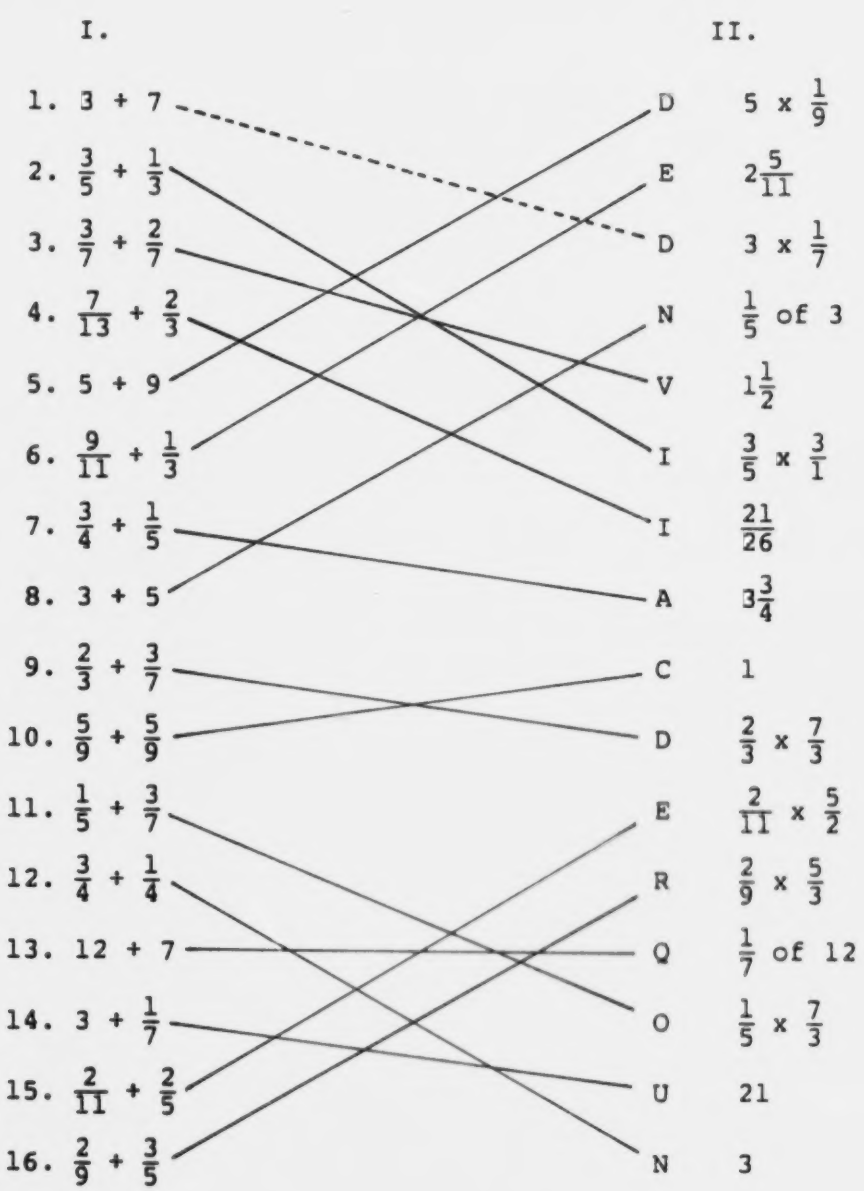
Write your own problem about Simm's Bakery involving division of fractions. Try to stump your classmates.

Problems will vary.

P.O. 6.06.03.01-.04

NAME: _____ CLASS: _____ DATE: _____

Directions: Connect the example in column I with its match in column II. Place the letter in column II in the boxes below to read the secret message. The first one has been done for you.



1.	2.	3.	4.	5.	6.		7.	8.	9.		10.	11.	12.	13.	14.	15.	16.
D	I	V	I	D	E		A	N	D		C	O	N	Q	U	E	R

P.O. 6.06.03.04&.05

NAME: _____ CLASS: _____ DATE: _____

I. Divide. Express each answer in simplest form.

1. $\frac{1}{2} + \frac{4}{5} =$ $\frac{5}{8}$

2. $\frac{5}{12} + \frac{5}{12} =$ 1

3. $\frac{7}{11} + \frac{2}{3} =$ $\frac{21}{22}$

4. $\frac{1}{4} + \frac{1}{3} =$ $\frac{3}{4}$

5. $\frac{1}{7} + \frac{9}{10} =$ $\frac{10}{63}$

6. $\frac{3}{7} + \frac{8}{11} =$ $\frac{33}{56}$

7. $\frac{1}{7} + \frac{5}{8} =$ $\frac{8}{35}$

8. $\frac{7}{8} + \frac{5}{7} =$ $1\frac{9}{40}$

9. $\frac{5}{6} + \frac{3}{4} =$ $1\frac{1}{9}$

10. $15 + \frac{4}{7} =$ $26\frac{1}{4}$

II. Mixed Problem Solving

1. If Marco can complete his entire homework assignment in 3 hours, how long will it take him to complete $\frac{3}{4}$ of his homework assignment?
$2\frac{1}{4}$ hr

2. How many $\frac{1}{8}$ ft lengths can be cut from a plank $\frac{3}{4}$ ft long?
6 lengths

3. The key on a map shows $\frac{1}{4}$ in. representing one mile. What is the distance between two cities $\frac{7}{8}$ in. apart on the map? $3\frac{1}{2}$ miles

4. Anna worked 35 hours in January and $\frac{4}{5}$ of this number of hours in February. How many hours did she work in February? 28 hours

5. Maria Elena has $\frac{15}{16}$ lb of bran. She needs $\frac{1}{4}$ lb to make a dozen muffins. Does she have enough to make 4 dozen muffins?
NO
If she uses all of the bran, how many muffins can she make?
45 muffins or $3\frac{3}{4}$ dozen

P.O. 6.06.04.01

NAME: _____ CLASS: _____ DATE: _____

For examples 1-4, cross multiply, then circle are or are not.
Write = or ≠ in the circle.

1. $\frac{4}{9} \textcircled{=} \frac{16}{36}$

$4 \times 36 = 144$

$9 \times 16 = 144$

$\frac{4}{9}$ and $\frac{16}{36}$ (are) / are not equivalent.

2. $\frac{3}{8} \textcircled{\neq} \frac{9}{25}$

$3 \times 25 = 75$

$8 \times 9 = 72$

$\frac{3}{8}$ and $\frac{9}{25}$ are / (are not) equivalent.

3. $\frac{6}{9} \textcircled{=} \frac{2}{3}$

$\frac{6}{9}$ and $\frac{2}{3}$ (are) / are not equivalent.

4. $\frac{1}{2} \textcircled{\neq} \frac{27}{58}$

$\frac{1}{2}$ and $\frac{27}{58}$ are / (are not) equivalent.

5. $7 \times 8 = 56$
$2 \times 28 = 56$

Use these facts to make two equivalent fractions.

$\boxed{\frac{7}{28}} = \boxed{\frac{2}{8}}$

6. $3 \times 6 = 18$
$2 \times 9 = 18$

Use these facts to make two equivalent fractions.

$\boxed{\frac{3}{9}} = \boxed{\frac{2}{6}}$

7. Cross multiply. Then write = or ≠ in each circle.

$\frac{3}{8} \textcircled{\neq} \frac{2}{7}$ $\quad \frac{7}{8} \textcircled{=} \frac{14}{16}$

$\frac{4}{5} \textcircled{=} \frac{20}{25}$ $\quad \frac{8}{8} \textcircled{=} \frac{7}{7}$

8. Write two fractions. Cross multiply to see if they are equivalent.

Answers will vary.

P.O. 6.06.04.02-.03

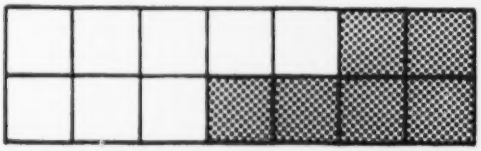
NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

1.

Write the ratio of shaded squares to total squares.

2 to 6 or 2 : 6

2. 

Write the ratio of unshaded squares to total squares.

8 to 14 or 8 : 14

3. Express each fraction as a ratio in two different ways.

A. $\frac{8}{9}$ 8 to 9 or 8 : 9

B. $\frac{6}{12}$ 6 to 12 or 6 : 12

C. $\frac{19}{25}$ 19 to 25 or 19 : 25

D. $\frac{2}{7}$ 2 to 7 or 2 : 7

E. $\frac{5}{8}$ 5 to 8 or 5 : 8

4. Decide if each proportion is true. Write T for true, F for false.

A. 6 : 9 = 2 : 3 T

B. 5 : 8 = 2 : 4 F

C. 1 : 9 = 3 : 27 T

D. 5 : 8 = 25 : 40 T

E. 6 : 10 = 25 : 40 F

F. 17 : 34 = 1 : 2 T

G. 11 : 12 = 33 : 35 F

5. Write each proportion in another way.

A. 7 is to 10 as 14 is to 20
$\frac{7}{10} = \frac{14}{20}$ or 7:10=14:20

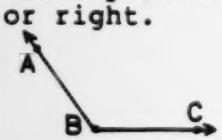
B. 2 is to 5 as 6 is to 15
$\frac{2}{5} = \frac{6}{15}$ or 2:5=6:15

C. 4 is to 6 as 8 is to 12
$\frac{4}{6} = \frac{8}{12}$ or 4:6 = 8:12

D. 1 is to 4 as 4 is to 16
$\frac{1}{4} = \frac{4}{16}$ or 1:4 = 4:16

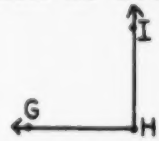
Do you remember?

Use a protractor to measure each angle. Identify each as acute, obtuse, or right.



angle measurement: 120° angle type: obtuse

angle measurement: 60° angle type: acute



angle measurement: 90° angle type: right

P.O. 6.06.04.03-.04

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

I. Determine whether each of the following is a proportion. Place = or ≠ in the circle to make the sentence true.

1. 2 : 8 (=) 6 : 24
2. 3 : 13 (=) 9 : 39
3. 8 : 12 (=) 24 : 36
4. 5 : 25 (≠) 6 : 35
5. 10 : 15 (=) 30 : 45
6. 7 : 12 (=) 28 : 48
7. 1 : 2 (≠) 28 : 58
8. 16 : 12 (=) 4 : 3

II. Find the missing term that will make each of the following a true proportion.

1. 6 : a = 15 : 45

a = 18

2. 7 : 8 = 56 : n

n = 64

III. Find the missing term in the answer box. Fill in each square to make a proportion. Each numeral may be used only once.

ANSWER BOX

2	16	80	20	14	27
24	4	9	8	21	50

1. $\frac{3}{9} = \frac{9}{\boxed{27}}$
2. $\frac{6}{12} = \frac{\boxed{8}}{16}$
3. $\frac{4}{\boxed{24}} = \frac{1}{6}$
4. $\frac{3}{10} = \frac{15}{\boxed{50}}$
5. $\frac{\boxed{2}}{3} = \frac{6}{9}$
6. $\frac{2}{7} = \frac{\boxed{14}}{49}$
7. $\frac{\boxed{4}}{6} = \frac{2}{3}$
8. $\frac{7}{8} = \frac{\boxed{21}}{24}$
9. $\frac{1}{4} = \frac{4}{\boxed{16}}$
10. 1 : 2 = 10 : 20
11. 1 : 8 = 10 : 80
12. 3 : 9 = 10 : 30

P.O. 6.06.04.04-.05

NAME: _____ CLASS: _____ DATE: _____

Write proportions to solve the problems below.

1. Janet was able to run 3 miles for every 2 miles that Jack ran. If Janet ran 15 miles, how far did Jack run?

   Jack ran 10 miles.

2. The American boxers won 3 out of every 5 matches they fought. If they fought 35 matches, how many did they win?

   The Americans won 21 matches.

3. In one of the Olympic Games the Soviet shotput was thrown at a 6 to 5 ratio over that of the Cubans. If the Soviets threw the shotput 72 feet, how far did the Cubans throw the shotput?

   The Cubans threw it 60 feet.

4. A roadmap for a race used a line that was 3 inches long to show a long hill. The key for this map showed that 1 inch on the map represented 2 miles on the race course. How long was the hill?

   The hill was 6 miles long.

5. An American sprinter ran the 100 meter dash during the Olympic trials. If he ran 8 meters per second, how long did it take him to finish the race?

   It took him $12\frac{1}{2}$ seconds.

6. During the third period of a basketball game, the American team outscored the Canadian team by a 3 to 2 margin. If the Canadian team scored 22 points, how many points did the American team score?

   The American team scored 33 points.

SHARPENING YOUR SKILLS

Units 37, 38, 39

Name: _____ **Class:** _____ **Date:** _____

1. $\frac{1}{3} \times \frac{15}{17} =$ _____

(a) 5 ● $\frac{5}{17}$

(b) $1\frac{5}{17}$ (d) Not Here

2. $\frac{1}{5} \times \frac{10}{13} =$ _____

(e) 2 (g) $1\frac{10}{13}$

● $\frac{2}{13}$ (h) Not Here

3. $\frac{1}{2} \times \frac{3}{5} =$ _____

● $\frac{3}{10}$ (c) $1\frac{1}{5}$

(b) $\frac{5}{6}$ (d) Not Here

4. $\frac{2}{3} \times \frac{3}{5} =$ _____

(e) $1\frac{1}{5}$ ● $\frac{2}{5}$

(f) $\frac{1}{3}$ (h) Not Here

5. $3 + 4 =$ _____

● $\frac{1}{4}$ of 3 (c) $\frac{4}{3}$

(b) $\frac{1}{3}$ of 4 (d) Not Here

6. $\frac{3}{4} + \frac{2}{3} =$ _____

(e) $\frac{3}{4} \times \frac{2}{3}$ ● $\frac{3}{4} \times \frac{3}{2}$

(f) $\frac{4}{3} \times \frac{2}{3}$ (h) Not Here

7. $\frac{3}{5} + \frac{1}{3} =$ _____

(a) $\frac{3}{15}$ (c) $\frac{5}{9}$

● $1\frac{4}{5}$ (d) Not Here

8. $8 + \frac{2}{5} =$ _____

● 20 (g) $3\frac{1}{5}$

(f) 40 (h) Not Here

9. $3 : 5 = 9 :$ [15]

10. Does $\frac{2}{3} = \frac{12}{15}$?

NO

11. Jody has six cups of juice. How many $\frac{3}{4}$ cup servings can she pour? 8 servings

12. Sammy had $\frac{3}{4}$ pound of ham. He used $\frac{1}{3}$ of the ham for a sandwich. How much ham did he use?

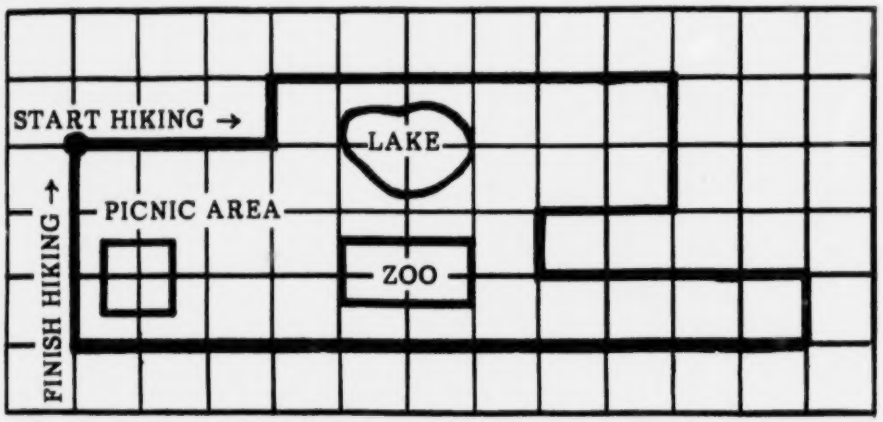
$\frac{1}{4}$ lb

P.O. 6.10.05.01-.02

NAME: _____ CLASS: _____ DATE: _____

I. Use this map of Cedar Park to answer the questions below.

CEDAR PARK



Scale: 2 cm = 1 km

1. How long is the actual hike path at Cedar Park? 17 km

2. What is the length of the park? $6\frac{1}{2}$ km What is its width? 3 km

3. What is the area of Cedar Park? $19\frac{1}{2}$ km^2

4. What is the area of the Zoo? $\frac{1}{2}$ km^2

II. **Make a scale drawing of your room at home or in school. Use the centimeter graph paper below. Remember: Decide what your scale will be.**

Answers will vary.

SCALE: _____

P.O. 6.07.03.01-.02

Name _____ Class _____ Date _____

I. Express each fraction as a percent.

A. $\frac{31}{100}$ = 31% F. $\frac{19}{100}$ = 19%

B. $\frac{2}{100}$ = 2% G. $\frac{1}{20}$ = 5%

C. $\frac{2}{10}$ = 20% H. $\frac{2}{5}$ = 40%

D. $\frac{12}{100}$ = 12% I. $\frac{9}{10}$ = 90%

E. $\frac{3}{25}$ = 12% J. $\frac{1}{2}$ = 50%

II. Express each decimal as a percent.

K. 0.23 = 23% P. 0.99 = 99%

L. 0.50 = 50% Q. 0.45 = 45%

M. 0.25 = 25% R. 0.61 = 61%

N. 0.16 = 16% S. 0.38 = 38%

O. 0.04 = 4% T. 1.00 = 100%

III. Change each decimal to a fraction with a denominator of 100 and then to a percent.

U. 0.25 = $\frac{25}{100}$ = 25%

V. 0.31 = $\frac{31}{100}$ = 31%

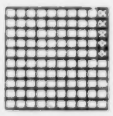
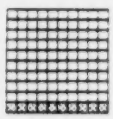
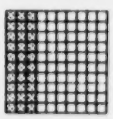
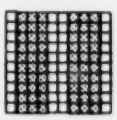
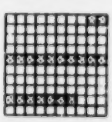
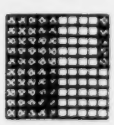
W. 0.09 = $\frac{9}{100}$ = 9%

X. 0.98 = $\frac{98}{100}$ = 98%

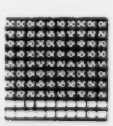
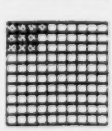
Y. 0.01 = $\frac{1}{100}$ = 1%

Z. 0.34 = $\frac{34}{100}$ = 34%

IV. Examine each decimal card. Express the shaded portion as a fraction, a decimal, and a percent.

		Fraction	Decimal	Percent
1.		$\frac{5}{100}$	0.05	5%
2.		$\frac{10}{100}$	0.10	10%
3.		$\frac{30}{100}$	0.30	30%
4.		$\frac{60}{100}$	0.60	60%
5.		$\frac{19}{100}$	0.19	19%
6.		$\frac{55}{100}$	0.55	55%

V. Express the unshaded part as a fraction, a decimal, and a percent.

7.		$\frac{20}{100}$	0.20	20%
8.		$\frac{90}{100}$	0.90	90%

P.O. 6.07.03.02-.04

Name _____ Class _____ Date _____

I. Express each fraction as an equivalent fraction with a denominator of 100.

$\frac{1}{4} = \frac{1 \times 25}{4 \times 25} = \frac{25}{100}$

A. $\frac{1}{2} = \frac{50}{100}$

B. $\frac{3}{4} = \frac{75}{100}$

C. $\frac{9}{10} = \frac{90}{100}$

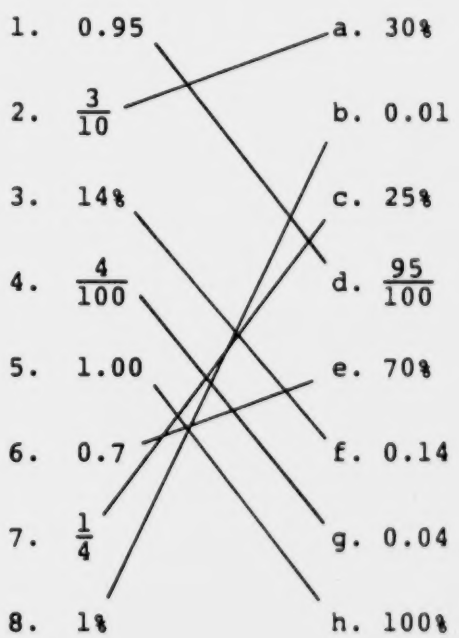
D. $\frac{7}{20} = \frac{35}{100}$

E. $\frac{1}{5} = \frac{20}{100}$

F. $\frac{4}{25} = \frac{16}{100}$

G. $\frac{9}{50} = \frac{18}{100}$

II. Match the equivalent values.



III. Divide to express each fraction as a decimal and as a percent.

1. $\frac{1}{5} = 5\overline{)1.00} = 0.20 = 20\%$

2. $\frac{1}{4} = 4\overline{)1.00} = 0.25 = 25\%$

3. $\frac{1}{10} = 10\overline{)1.00} = 0.10 = 10\%$

4. $\frac{1}{20} = 20\overline{)1.00} = 0.05 = 5\%$

IV. Solve each proportion to express each fraction as a decimal.

1. $\frac{3}{50} = \frac{\boxed{6}}{100} = 0.06$

2. $\frac{2}{25} = \frac{\boxed{8}}{100} = 0.08$

3. $\frac{15}{20} = \frac{\boxed{75}}{100} = 0.75$

4. $\frac{4}{5} = \frac{\boxed{80}}{100} = 0.80$

P.O. 6.07.03.05

Name _____ Class _____ Date _____

Solve.

1. There are 100 cars in the parking lot. Thirty-one are station wagons. What percent are station wagons?

   31%

2. There are 100 students in the sixth grade. Ninety-seven went on the class trip. What percent of the students went on the trip?

   97%

   What percent did not go on the trip?

   3%

3. The continent of Asia has about $\frac{3}{5}$ of the world's population. What fraction of the world's population is not in Asia?

   $\frac{2}{5}$

   What percent is this?

   40%

4. Forty-nine percent of the sixth grade went to the movies. What fraction of the sixth grade is this?

   $\frac{49}{100}$

   Write this answer as a decimal.

   0.49

5. About $\frac{1}{4}$ of the population of Canada lives in rural areas. What percent of the population is this?

   25%

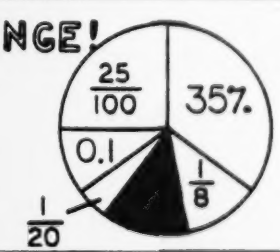
6. The amount of each ingredient is listed on a cake wrapper:
   sugar 0.09 flour 0.62
   water 0.29

   a. What percent of the cake is flour? 62%

   b. What fraction of the cake is sugar? $\frac{9}{100}$

   c. Find the sum of all three decimal numbers. What percent is this? 100%

CHALLENGE!



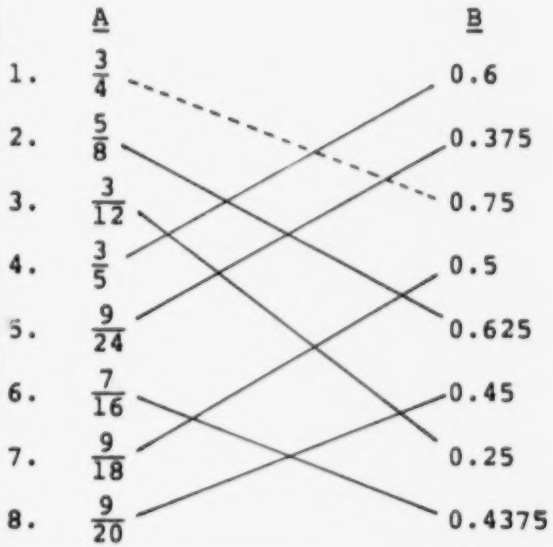
The pie has been cut into different size pieces and some pieces have been eaten. There is only one piece left. What fraction of the pie is left?

$\frac{1}{8}$

P.O. 6.06.05.01-.02

Name _____ Class _____ Date _____

I. Match the fraction in column A with its decimal equivalent in column B.



II. Express each of the following as decimals. Then compare them by placing >, <, or = in the circle.

1. $\frac{4}{5} \bigcirc \frac{7}{8}$ $\frac{4}{5}$ = 0.80 $\frac{7}{8}$ = 0.875
2. $\frac{3}{6} = \frac{2}{4}$ $\frac{3}{6}$ = 0.50 $\frac{2}{4}$ = 0.50
3. $\frac{1}{4} < \frac{3}{5}$ $\frac{1}{4}$ = 0.25 $\frac{3}{5}$ = 0.60
4. $\frac{2}{8} > \frac{1}{5}$ $\frac{2}{8}$ = 0.25 $\frac{1}{5}$ = 0.20
5. $\frac{3}{4} = \frac{6}{8}$ $\frac{3}{4}$ = 0.75 $\frac{6}{8}$ = 0.75
6. $\frac{3}{8} < \frac{2}{5}$ $\frac{3}{8}$ = 0.375 $\frac{2}{5}$ = 0.40

III. Use a calculator to compare each of the following. Round each decimal to the nearest ten-thousandth when necessary, then place > or < in the circle.

1. $\frac{9}{13} \approx$ 0.6923
   $\frac{2}{3} \approx$ 0.6667
   $\frac{9}{13} > \frac{2}{3}$

3. $\frac{4}{9} \approx$ 0.4444
   $\frac{3}{7} \approx$ 0.4286
   $\frac{4}{9} > \frac{3}{7}$

5. $\frac{1}{3} \approx$ 0.3333
   $\frac{5}{14} \approx$ 0.3571
   $\frac{1}{3} < \frac{5}{14}$

2. $\frac{5}{6} \approx$ 0.8333
   $\frac{13}{15} \approx$ 0.8667
   $\frac{5}{6} < \frac{13}{15}$

4. $\frac{7}{12} \approx$ 0.5833
   $\frac{6}{11} \approx$ 0.5455
   $\frac{7}{12} > \frac{6}{11}$

6. $\frac{6}{7} \approx$ 0.85[illegible]
   $\frac{17}{21} \approx$ 0.8095
   $\frac{6}{7} > \frac{17}{21}$

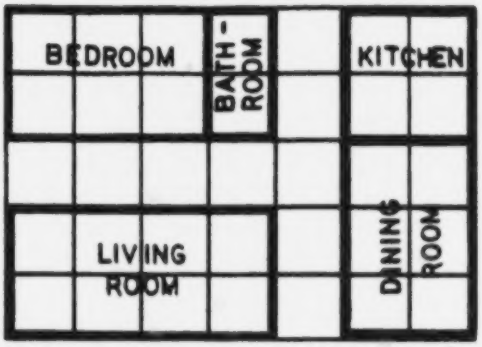
SHARPENING YOUR SKILLS

Units 40, 41, 42

Name: _____ **Class:** _____ **Date:** _____

Use the scale drawing below to answer questions 1-3.

Scale: 1 cm represents 2 m



1. What is the actual length of the living room?

   8 m

2. What is the actual perimeter of the bedroom?

   20 m

3. What is the actual area of the kitchen?

   16 m^2

4. Express each numeral below as a percent.

   (a) $\frac{12}{100}$ = 12%

   (b) $\frac{25}{100}$ = 25%

   (c) 0.5 = 50%

   (d) 0.13 = 13%

   (e) $\frac{3}{4}$ = 75%

   (f) $\frac{3}{5}$ = 60%

5. Express each fraction below as a percent.

   (a) $\frac{2}{5}$ = 40%

   (b) $\frac{7}{10}$ = 70%

   (c) $\frac{1}{2}$ = 50%

6. Write >, <, or = in the circle to make each statement true.

   (a) $\frac{5}{8}$ (<) $\frac{4}{5}$

   (b) $\frac{4}{5}$ (<) $\frac{5}{6}$

   (c) $\frac{3}{10}$ (<) $\frac{1}{3}$

7. Which of the following fractions equals 40%?

   (a) $\frac{4}{5}$ (c) $\frac{3}{4}$

   (●) $\frac{2}{5}$ (d) Not Here

8. Joan read 3 of the 5 books she borrowed from the library. What percent of the borrowed books did she read?

   60%

9. Six out of 24 cars parked on our block are red. What percent of the cars are red?

   25%

P.O. 6.07.04.01-.02

NAME: _____ CLASS: _____ DATE: _____

A. Solve each of the following:

1. 64% of 200 = 128
2. 25% of 56 = 14
3. 42% of 50 = 21
4. 58% of 75 = 43.5
5. 20% of 40 = 8
6. 60% of 95 = 57
7. 5% of 72 = 3.6
8. 10% of 36 = 3.6
9. 8% of 92 = 7.36
10. 75% of 64 = 48

B. Solve each problem.

1. Pat eats 3400 calories per day. She has to reduce her calorie intake by 10%. How many fewer calories should she now eat?

   340 fewer calories

2. Twenty-five percent of 120 sixth grade students wear braces. How many students wear braces?

   30 students

3. The librarian reports that 35% of the 1800 books borrowed each week are mystery books. How many mystery books are borrowed each week?

   630 mystery books

4. Five hundred sixty students attend Parkside Heights Elementary School. One day 5% of the students were absent. How many students were absent?

   28 students

5. A sporting goods store had a clearance sale. Every item was reduced by 25%. How much was saved on a pair of sneakers if the original price was $36?

   $9.00

CHALLENGE!

New York City sales tax is $8\frac{1}{4}$%. How much tax is added to a car that costs $15,900.00? What is the total cost of the car?

$1311.75 is the tax.

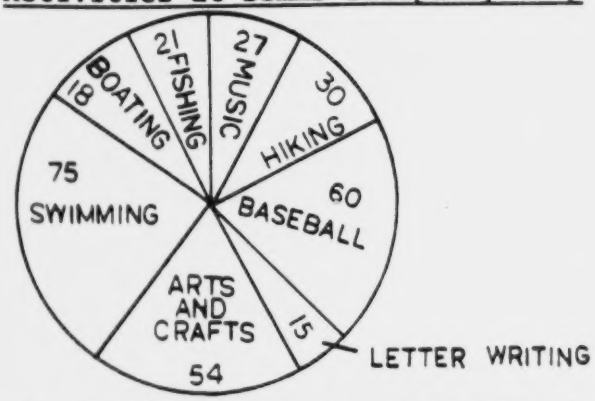
$17,211.75 is the total cost of the car.

P.O. 6.12.04.01

NAME: _____ CLASS: _____ DATE: _____

Answer the following questions related to the graph.

Activities at Simms Sleepaway Camp



The 300 campers at Simms Sleepaway Camp are kept very busy. The graph shows the activities the 300 campers are doing on a typical day.

1. Find the percent of campers involved in each activity.

swimming	25%	hiking	10%
fishing	7%	baseball	20%
music	9%	letter writing	5%
boating	6%	arts and crafts	18%

2. If 9 hikers were bitten by mosquitoes and returned to camp, what percentage of the campers continued hiking? 7%

3. After visiting the nurse, these 9 campers decided to write home. What percent of the campers are now writing letters? 8%

4. What percent of the campers are involved in arts and crafts and fishing? 25%

5. After music, these campers joined the swimmers. What percent of the campers are now swimming? 34%

Do you remember?

Round to the nearest whole number.

(a) 3.4 3 (b) 7.65 8 (c) 12.049 12

Round to the nearest tenth.

(d) 3.52 3.5 (e) 18.75 18.8 (f) 13.099 13.1

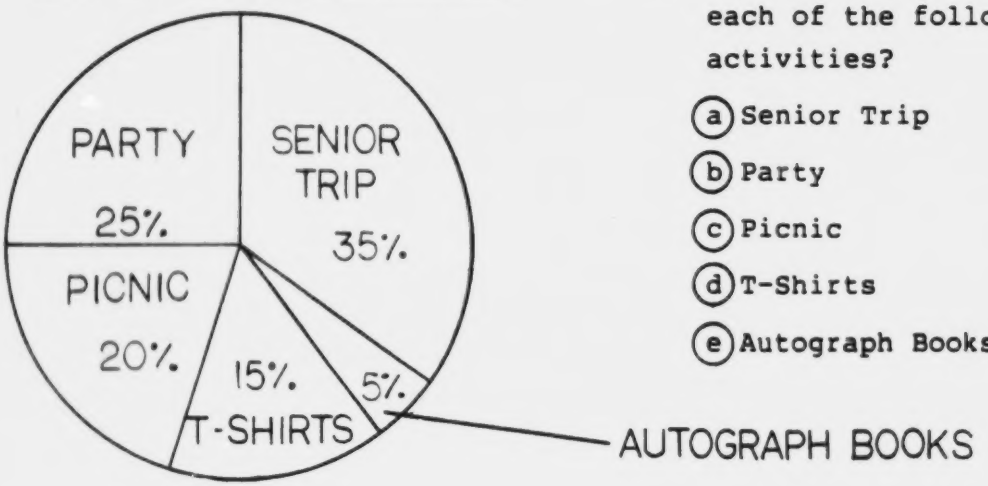
P.O. 6.12.04.02

NAME: _____ CLASS: _____ DATE: _____

Use the circle graph to answer the questions below.

The sixth grade had a fund raiser to help pay for the senior class activities.

6th Grade Graduation Expenses



Total $350.00

1. How much money was spent on each of the following activities?

   (a) Senior Trip $ 122.50

   (b) Party $ 87.50

   (c) Picnic $ 70.00

   (d) T-Shirts $ 52.50

   (e) Autograph Books $ 17.50

2. How much more money was spent on the Senior Trip than on the Picnic? $52.50

3. What 3 expenses accounted for 50% of the total money spent? Party, Picnic, and Autograph Books

4. What expense accounted for $\frac{1}{5}$ of the money spent? Picnic

5. How much money was spent in all for T-shirts, autograph books, and the party? $157.50

6. Which two items accounted for a total of $70.00? T-Shirts Autograph Books

CHALLENGE! Answers will vary.

Pick a partner to help you conduct an investigation. Visit several classes and determine the television programs watched most often by students. Keep a record. Draw a circle graph showing the results and convert your figures into percents. Write at least 5 questions related to your graph.

P.O. 6.01.05.01-.02

NAME: _____ CLASS: _____ DATE: _____

I. Write, in set notation, the union of the following sets.

1. A = {red, white, blue} B = {red, black, white}
   A ∪ B = {red, white, blue, black}
2. S = {Patti, Gladys, Dionne} T = {Aretha, Patti}
   S ∪ T = {Patty, Gladys, Dionne, Aretha}
3. M = {John, Paul} R = {George, Richard}
   M ∪ R = {John, Paul, George, Richard}
4. K = {1,3,5,7,9,11} L = {3,6,9,12,15}
   K ∪ L = {1, 3, 5, 6, 7, 9, 11, 12, 15}

II. Write, in set notation, the intersection of the following sets.

1. F = {5,10,15,20,25} T = {10,20,30,40,50}
   F ∩ T = {10, 20}
2. S = {NY, NJ, MA, CT} N = {MA, ME, NH, VT, CT, RI}
   S ∩ N = {MA, CT}
3. G = {Bacon, Lettuce, Tomato} H = {Lettuce, Cheese, Tomato}
   G ∩ H = {Lettuce, Tomato}
4. C = {Math, Science, History} D = {Art, Math, Music, Science}
   C ∩ D = {Math, Science}

III. Write, in set notation, the union and the intersection of the following sets.

1. J = {a, e, i, o, u} L = {t, u, v, w, x, y, z}
   J ∪ L = {a, e, i, o, u, t, v, w, x, y, z}
   J ∩ L = {u}
2. Y = {Niger, Nile, Red, Rhine}
   Z = {Red, Rhine, Tiber, Tigris}
   Z ∪ Y = {Niger, Nile, Red, Rhine, Tiber, Tigris}
   Z ∩ Y = {Red, Rhine}

Do you remember?

Multiply each of the following. Express each product in simplest terms.

1. $\frac{2}{3} \times \frac{5}{12} = \frac{5}{18}$
2. $\frac{8}{15} \times \frac{1}{2} = \frac{4}{15}$
3. $\frac{4}{7} \times \frac{3}{5} = \frac{12}{35}$
4. $\frac{7}{9} \times \frac{3}{5} = \frac{7}{15}$
5. $\frac{9}{11} \times \frac{2}{3} = \frac{6}{11}$
6. $\frac{5}{18} \times \frac{3}{5} = \frac{1}{6}$

P.O. 6.01.05.03-.04

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

1. Set A is the set of flying elephants. Explain why it is an empty (or null) set. There are no flying elephants.

2. Set B is the set of even numbers which are divisible by three. Explain why it is not an empty (or null) set. There are even numbers divisible by 3, for example, 6,12, 18, 24...

Write two examples of an empty (or null) set.

3. Answers will vary.

4. _____

Which of the following is not a subset of set C?

C = {Pink, Blue, Orange, Yellow, Red, Green}

(a) F = {Pink, Orange, Red}
(b) C = {Pink, Blue, Orange, Yellow, Red, Green}
● G = {Blue, Yellow, Brown}
(d) H = {Green}
(e) I = { }

List 5 subsets for Set D.

D = {penny, nickel, dime, quarter}

1. Answers will vary.
2. _____
3. _____
4. _____
5. _____

Do you remember?

Solve each of the following:

1. $\frac{12}{15} + \frac{2}{3} = 1\frac{1}{5}$
2. $\frac{5}{6} + \frac{5}{8} = 1\frac{1}{3}$
3. $\frac{15}{16} + \frac{3}{4} = 1\frac{1}{4}$
4. $\frac{7}{18} + \frac{1}{2} = \frac{7}{9}$
5. $\frac{4}{5} + \frac{8}{9} = \frac{9}{10}$
6. $\frac{11}{12} + \frac{3}{8} = 2\frac{4}{9}$

P.O. 6.01.05.05-.06

NAME: _____ CLASS: _____ DATE: _____

I. Look at the universal set for each of the following. Then identify the complement of the given set.

1. U = { 5,10,15,20,25,30,35 }
   S = { 10,20,30 }
   Complement = { 5, 15, 25, 35 }

2. U = { aunt, uncle, niece }
   S = { aunt, niece }
   Complement = { uncle }

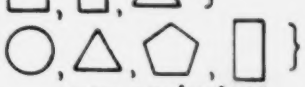
3. U = { Algeria, Tunisia, }
   S = { Algeria }
   Complement = { Tunisia }

4. U = { Lee, Bob, Ted, Art }
   S = { Art, Bob }
   Complement = { Lee, Ted }

II. Identify the following pairs of sets as equivalent, non-equivalent, or equal.

1. G = { 3,6,9,12,15,18 }
   H = { 1,3,5,7,9,11 }
   equivalent

2. A = { apple, peach, pear }
   B = { pear, apple, peach }
   equal

3. S = { }
   T = {  }
   non-equivalent

4. C = { lemon, lime, orange }
   D = { banana, strawberry }
   non-equivalent

5. N = { pie, cake, pudding }
   M = { ice cream, cake }
   non-equivalent

6. P = { pentagon, hexagon }
   Q = { triangle, rectangle }
   equivalent

7. R = { 12,16,20,24,28,32 }
   V = { 32,28,24,20,16,12 }
   equal

8. X = { add, multiply, divide }
   Y = { fraction, decimal }
   non-equivalent

SHARPENING YOUR SKILLS

Units 43, 44, 45

Name: _____ **Class:** _____ **Date:** _____

1. 25% of 60 = _____

   (a) 150 (c) 20

   ● 15 (d) Not Here

2. 20% of 55 = _____

   (e) 40 ● 11

   (f) 110 (h) Not Here

3. Which example below can be used to find 50% of 80?

   (a) $\frac{1}{5}$ x 80 ● $\frac{1}{2}$ x 80

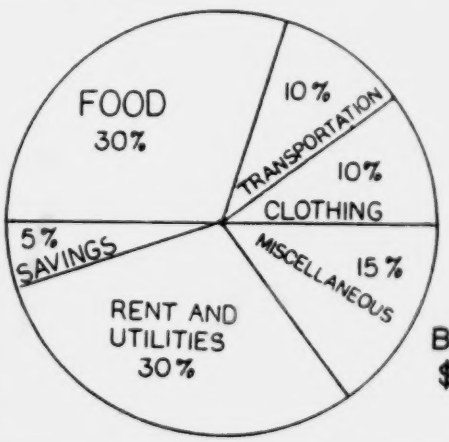
   (b) $\frac{1}{2}$ x 50 (d) Not Here

4. Which example below cannot be used to find 25% of 56?

   ● 25 x 56 (g) 0.25 x 56

   (f) $\frac{1}{4}$ x 56 (h) $\frac{25}{100}$ x 56

Use the circle graph below to answer questions 5-7.



BUDGET:
$3600.00

5. How much does the Fenway family spend on rent and utilities?

   $1080.00

6. How much more is spent on food than clothing?

   $720.00

7. How much money does the Fenway family save each month?

   $180.00

8. Write, in set notation, the union of set A and set B.

   A = {2, 4, 6, 8, 10}
   B = {12, 14, 16, 18}
   A ∪ B = {2,4,6,8,10,12,14,16,18}

9. Write, in set notation, the intersection of set C and set D.

   C = {A, L, M, T, X}
   D = {M, Y, Z}
   C ∩ D = {M}

10. Write a set that is equivalent to set E below.

    E = {boy, girl, dog, cat}

    Answers will vary.

11. How many subsets are there of set M below?

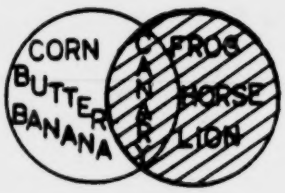
    M = {Jan, Sam, Tom, Lois} 16

P.O. 6.01.06.01-.02

NAME: _____ CLASS: _____ DATE: _____

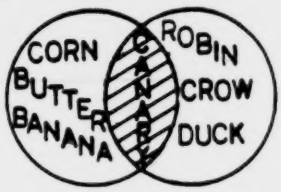
Use these Venn diagrams to answer the questions below.

I



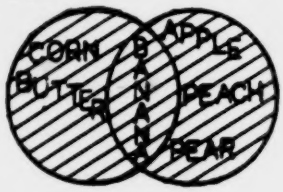
A B

II



C D

III



E F

1. Which diagram best describes E ∪ F?

(a) I (b) II ● III

2. Which diagram best describes C ∩ D?

(a) I ● II (c) III

3. Which diagram best describes a set of things to eat?

(a) I (b) II ● III

4. Which two sets contain members which are not fruit?

(a) Sets A and B ● Sets B and D

(b) Sets C and D (d) Sets E and F

5. Which is <u>not</u> an intersecting set in the Venn diagrams above?

(a) A ∩ B (b) C ∩ D (c) E ∩ F ● B ∩ F

6. How many sets contain an element which is usually yellow and flies?

(a) 1 (b) 2 (c) 3 ● 4

7. The set of different birds is:

(a) C ∩ D ● Set D (c) A ∩ B

8. Set B contains:

(a) frog, horse, lion (c) foods

(b) canary ● animals

9. The set of things that fly is:

(a) A ∩ B ● both A ∩ B and D

(b) C ∩ D (d) neither A ∩ B nor D

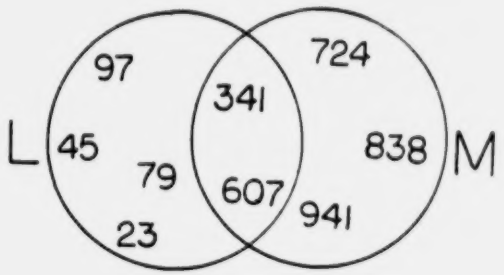
10. Which sets are <u>equal</u> sets?

(a) A and B (b) C and D ● A and C (d) B and C

P.O. 6.01.06.02-.03

NAME: _____ CLASS: _____ DATE: _____

Use the Venn diagram below to answer all questions on this page.



1. How many elements are in set L? 6

2. Which set has more elements, L or M? L

3. How many elements are in the union set? 9

4. Numerals 97 and 941 are found in:

   (a) the same set
   (c) neither set
   ● different sets
   (d) the intersecting set

5. Numeral 79 is found in:

   ● L
   (b) M
   (c) L ∪ M
   (d) L ∩ M

6. Numeral 838 is found in:

   (a) L
   ● M
   (c) L ∪ M
   (d) L ∩ M

7. Which best describes the members in the union of sets L and M?

   (a) two odd 3-digit numerals
   ● 2-digit and 3-digit numerals
   (c) nine odd 3-digit numerals
   (d) nine odd 2-digit and 3-digit numerals
   (e) eleven 2-digit and 3-digit numerals

8. True or False? 23 and 724 are both in L. False

   True or False? 341 and 45 are both in L. True

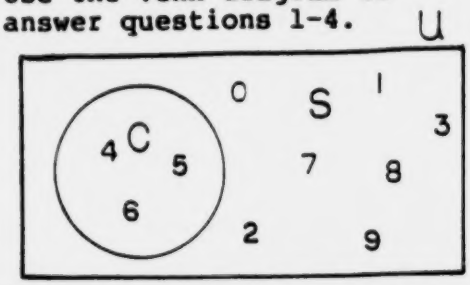
   True or False? 607 is a member of L only. False

   True or False? 341 is a member of both L and M. True

P.O. 6.01.06.02&.04

NAME: _____ CLASS: _____ DATE: _____

I. Use the Venn diagram to answer questions 1-4.



1. The universal set includes
   - (a) {0,1,3,4,7,8,9}
   - (b) {4,5,6}
   - ● {0,1,2,3,4,5,6,7,8,9}
   - (d) the numerals 1 to 9
   - (e) Not Here

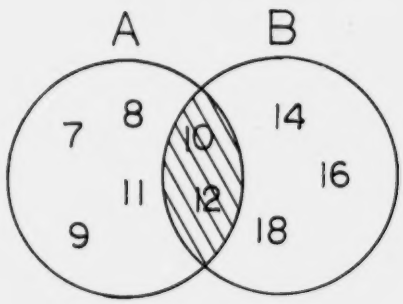
2. The subset of U contains
   - (f) three consecutive digits
   - (g) three even consecutive digits
   - ● seven one-digit numerals
   - (j) the digits 0 through 9
   - (k) Not Here

3. The complement of set S includes:
   - (a) members in the subset not in set U
   - ● members in set U not in the subset
   - (c) members in both the subset and set U
   - (d) members greater than 9
   - (e) Not Here

4. The elements of U include
   - (f) the ten digits in our number system
   - (g) the elements in the subset and its complement
   - (h) numerals 0 through 9
   - ● all of the above
   - (k) none of the above

II. Draw a Venn diagram below using the following information:

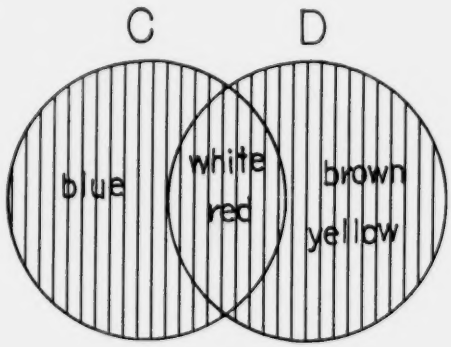
1. Sets A and B intersect.
2. Set A contains consecutive numbers 7 through 12.
3. Set B contains even numbers from 10 through 18.
4. A $\cap$ B contains even, 2-digit numbers only.
5. Label both sets and shade in A $\cap$ B.



III. Draw a Venn diagram below of the union of sets C and D.

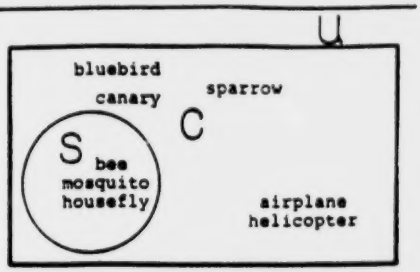
Use this information:

1. C = {blue, red, white}
2. D = {yellow, red, brown, white}
3. Label both sets and shade in C $\cup$ D.



P.O. 6.01.06.03-.04

NAME: _____ CLASS: _____ DATE: _____



Directions: Fill in the missing information which best answers each question. Use the Venn diagram on the left to help you answer the questions.

1. The universal set above has 8 elements.
2. The complement of subset S has 5 elements.
3. The subset of things that fly which are insects is set S.
4. The best description for the members of set U is:

   (a) things that are insects and birds
   ● things that fly
   (b) things which carry people
   (d) things that have feathers

5. The complement of subset S includes:

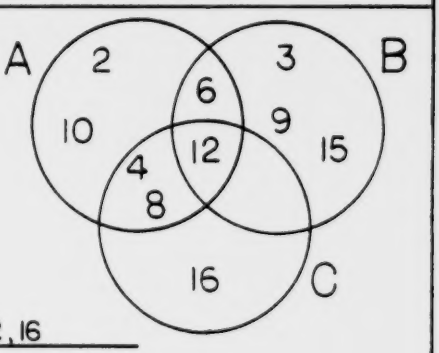
   (a) birds and insects
   (c) birds only
   ● birds and aircraft
   (d) Not Here

6. If set U did not include aircraft, what would the members of the complement set be now?

   ● {bluebird, canary, sparrow}
   (c) {helicopter, airplane, bluebird, sparrow, canary}
   (b) {helicopter, airplane}
   (d) {housefly, bee, mosquito}

CHALLENGE!

Here are 3 intersecting sets. Can you answer these questions?



1. Which set has elements all of which are multiples of 4? C
2. Which numbers are in A ∩ C? 4, 8, 12
3. Which members are only in A ∪ C? 2, 4, 6, 8, 10, 12, 16
4. Which elements are in A ∪ B which are not in C? 2, 3, 6, 9, 10, 15
5. Which element(s) is (are) found in sets A, B, and C? 12

P.O. 6.14.13.01-.02

Name _____ Class _____ Date _____

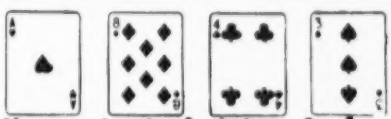
I. Write the set which shows the sample space for each experiment below.

A. Tossing a die:

Sample Space = {1,2,3,4,5,6}

B. Spinning this spinner:

Sample Space = {u, v, w, x, y, z}

C. Picking a card from this group: 

Sample Space = {ace of hearts, 8 of diamonds, 4 of clubs, 3 of spades}

D. Tossing a coin:

Sample Space = {heads, tails}

E. Spinning this spinner:

Sample Space = {1, 2, 3}

II. A. In which experiment(s) above are the outcomes not all equally likely to occur? E

B. In which experiment(s) above is the probability of each outcome $\frac{1}{6}$? A and B

III. A. If there are 7 red chips and 3 blue chips in a bag, what is the probability of picking a blue chip? $\frac{3}{10}$

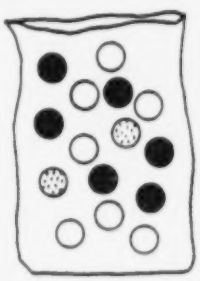
If 5 yellow chips are added to this bag of red and blue chips, what will be the probability of picking a blue chip now? $\frac{3}{15}$ or $\frac{1}{5}$

B. If you toss one die, what is the probability of getting:

1) a number greater than 4? $\frac{2}{6}$ or $\frac{1}{3}$
2) an even number? $\frac{3}{6}$ or $\frac{1}{2}$
3) a number less than 6? $\frac{5}{6}$
4) a 2? $\frac{1}{6}$

P.O. 6.14.13.03-.04

Name _____ Class _____ Date _____

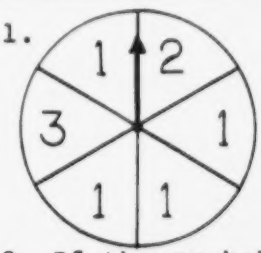
A. 

There are black chips (●), white chips (○), and red chips (◎) in a bag. What is the sum of all the probabilities in this experiment? 1

Prove that your answer is correct by adding the probabilities of all the possible outcomes.

black chips white chips red chips

$\frac{6}{15} + \frac{7}{15} + \frac{2}{15} = \frac{15}{15} = 1$

B. 1. 

If you were to spin this spinner, what is the probability that:

a. the spinner will land on a 1? $\frac{4}{6}$ or $\frac{2}{3}$

b. the spinner will land on a number that is not 1? $\frac{2}{6}$ or $\frac{1}{3}$

2. If the probability of winning a race is $\frac{7}{10}$, what is the probability of not winning? $\frac{3}{10}$

3. If the probability of picking a red chip from a bag is $\frac{4}{5}$, what is the probability of picking a chip that is not red? $\frac{1}{5}$

4. If the probabililty of picking a picture card from a single suit in a deck of playing cards is $\frac{3}{13}$, what is the probability of picking a card that is not a picture card? $\frac{10}{13}$

CHALLENGE!

Which event below has a greater likelihood of occurring:

(a) picking an ace from a deck of playing cards or ● picking a red marble from a bag containing 3 blue marbles, 10 white marbles, 2 red marbles, and 5 green marbles.

Explain: P(picking an ace) = $\frac{4}{52}$ or $\frac{1}{13}$

P(red marble) = $\frac{2}{20}$ or $\frac{1}{10}$ $\frac{1}{10} > \frac{1}{13}$

P.O. 6.14.13.05

Name _____ Class _____ Date _____

A. Place 2 red chips, 2 blue chips, and 2 yellow chips in a paper bag.

1. What is the probability of picking a red chip? $\frac{2}{6}$ or $\frac{1}{3}$
2. What is the probability of picking a blue chip? $\frac{2}{6}$ or $\frac{1}{3}$
3. What is the probability of picking a yellow chip? $\frac{2}{6}$ or $\frac{1}{3}$
4. Is each outcome, red, blue, or yellow, equally likely to occur? Yes
5. If you pick 60 times, about how many times do you think you will pick a yellow chip? about 20 times
6. Now try the experiment. Record the number of times you picked each color chip in the space below. Remember to replace the chip in the bag before picking again.

Red	Blue	Yellow

7. How many times was a yellow chip picked? Answers will vary.
8. How does this compare to your prediction? Answers will vary.

B. Place 3 red chips and 1 blue chip in a paper bag.

1. What is the probability of picking a red chip? $\frac{3}{4}$
2. What is the probability of picking a chip that is not red? $\frac{1}{4}$
3. Is each outcome equally likely to occur? No
4. If you pick 60 times, about how many times do you think you will pick a red chip? about 45 times
5. Now try the experiment. Record each pick in the box below. Remember to replace the chip before picking again.

Red	Blue

6. How many times did you pick a red chip? Answers will vary.
7. How does this compare to your prediction? Answers will vary.

P.O. 6.12.05.01-.02

Name _____ Class _____ Date _____

Write the sample space and then answer the questions for each compound event shown below.

1. tossing a coin
   and
   spinning the spinner

Sample Space	
(heads, red)	(tails, red)
(heads, white)	(tails, white)
(heads, blue)	(tails, blue)
(heads, black)	(tails, black)

a. How many different outcomes are possible? 8

b. What is the probability of getting heads on the coin and white on the spinner? $\frac{1}{8}$

c. What is the sum of all the probabilities? 1

2. rolling a die
   and
   picking a card

Sample Space		
(1, K♦)	(1, 2♥)	(1, A♦)
(2, K♦)	(2, 2♥)	(2, A♦)
(3, K♦)	(3, 2♥)	(3, A♦)
(4, K♦)	(4, 2♥)	(4, A♦)
(5, K♦)	(5, 2♥)	(5, A♦)
(6, K♦)	(6, 2♥)	(6, A♦)

a. How many different outcomes are possible? 18

b. What is the probability of getting a 3 on the die and picking the king of diamonds? $\frac{1}{18}$

c. What is the probability of getting a 6 on the die and picking a card with a diamond on it? $\frac{2}{18}$ or $\frac{1}{9}$

d. What is the probability of getting an even number on the die and picking the ace of diamonds? $\frac{3}{18}$ or $\frac{1}{6}$

3. picking a chip
   and
   tossing a coin

● = black chip
○ = white chip

Sample Space	
(black, heads)	(white, heads)
(black, tails)	(white, tails)

a. How many different outcomes are possible? 4

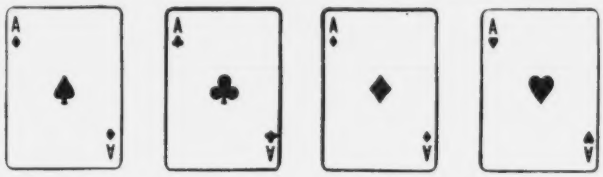
b. What is the probability of picking a white chip and getting tails on the coin toss? $\frac{1}{4}$

c. What is the probability of picking a black chip and getting heads on the coin toss? $\frac{1}{4}$

P.O. 6.12.05.01-.03

Name _____ Class _____ Date _____

Prepare the following materials for a probability experiment:



Place the playing cards face down on a table or a desk and mix them up.

A. In the box below, write the sample space for tossing the coin and picking a card.

Sample Space

(heads, ace of spades)	(tails, ace of spades)
(heads, ace of clubs)	(tails, ace of clubs)
(heads, ace of diamonds)	(tails, ace of diamonds)
(heads, ace of hearts)	(tails, ace of hearts)

1. How many outcomes are possible? 8
2. What is the probability of getting heads on the coin toss and picking the ace of diamonds? $\frac{1}{8}$
3. What is the probability of getting tails on the coin toss and picking an ace? $\frac{4}{8}$ or $\frac{1}{2}$

B. Select one of the possible outcomes from the sample space above and write it on the line.

Answers will vary.

This will be the favorable outcome.

If you toss the coin and pick a card 40 times, about how many times do you think the favorable outcome will occur? about 5 times

Now try the experiment 40 times. Keep a record of the outcomes for each trial in the space below.

1. How many times did your favorable outcome actually occur?
   Answers will vary.
2. How does this compare with your prediction?
   Answers will vary.

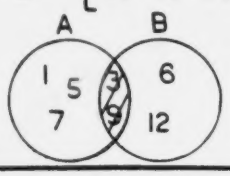
SHARPENING YOUR SKILLS

Units 46, 47, 48

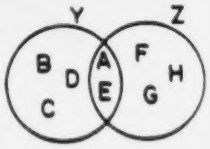
Name: _____ **Class:** _____ **Date:** _____

1. Draw a Venn diagram to show the intersection of set A and set B below.

$A = \{1, 3, 5, 7, 9\}$
$B = \{3, 6, 9, 12\}$



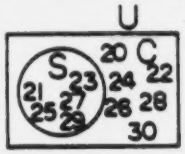
2. Look at the following Venn diagram.



Which of the following sets is the union of set Y and set Z?

(a) {A, B, C, D}
(b) {A, E, F, G, H}
● {A, B, C, D, E, F, G, H}
(d) Not Here

3. Look at the Venn diagram below.



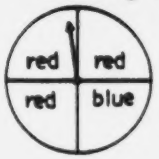
Which phrase best describes the complement of set S?

● even numbers from 20 through 30
(f) odd numbers from 21 through 29
(g) the counting numbers from 20 through 30
(h) Not Here

4. A bag contains 5 red cubes and 6 blue cubes. If you pick a cube without looking, what is the probability of picking a red cube?

$\frac{5}{11}$

5. For the spinner below, what is the probability of the spinner landing on red?



$\frac{3}{4}$

6. If the probability of winning a game is $\frac{5}{8}$, what is the probability of <u>not</u> winning the game?

$\frac{3}{8}$

7. List the sample space for the compound event of tossing a coin and spinning the spinner shown below.

(heads, 1) (heads, 2) (heads, 3) (heads, 4) (heads, 5) (heads, 6) (tails, 1) (tails, 2) (tails, 3) (tails, 4) (tails, 5) (tails, 6)

8. From the sample space you listed above, determine the probability of getting <u>a head and a 4.</u>

$\frac{1}{12}$

P.O. 6.07.05.01-.02

Name _____ Class _____ Date _____

Round each decimal to the nearest whole number to estimate each sum or difference. Then compute to find the actual sum or difference. Check your work on a separate paper.

1. 3.6521 + 52.9 = _____

estimate: 57 sum: 56.5521

2. 87.12 - 15.015 = _____

estimate: 72 diff. 72.105

3. 457.2
- 28.926

estimate: 428 diff: 428.274

4. 325.2 + 8.76 = _____

estimate: 334 sum: 333.96

5. 3.2
86.09
+52.8672

estimate: 142 sum: 142.1572

6. 876.403
-282.41

estimate: 594 diff. 593.993

7. 3.266
35.4
+ 1.802

estimate: 40 sum: 40.468

8. 264.1
- 83.646

estimate: 180 diff. 180.454

P.O. 6.07.05.03

NAME: _____ CLASS: _____ DATE: _____

Solve each problem below.

1. A room measures 4.67 meters long and 3.892 meters wide. What is the perimeter of the room?

17.124 m

2. A carton of science books weighed 18.02 kg. A carton of social studies books weighed 22.604 kg. How much heavier is the carton of social studies books?

4.584 kg

3. Graham Wilkie, a skier from Great Britain, achieved a speed of 132.054 mph on April 17, 1987. Jacqueline Blanc, a skier from France, achieved the speed of 124.902 mph. What was the difference in their speeds?

7.152 mph

4.

	Mon.	Tues.	Wed.
	kg	kg	kg
BATTER FOR DONUTS	12.82	9.275	14.6
DOUGH FOR BREAD	42.6	50.2895	47.25

Mr. Yeast is a baker at the Bread Box Bakery and Donut Shop. He prepares the dough for the bread and the batter for the donuts. Each day he records the weight of the dough and the batter he prepares.

a. How many kilograms of donut batter has he prepared so far this week?

36.695 kg

b. How many kilograms of bread dough has he prepared so far this week?

140.1395 kg

c. What is the difference between the amount of bread dough prepared on Monday and the amount prepared on Tuesday?

7.6895 kg

P.O. 6.07.06.01-.04

NAME: _____ CLASS: _____ DATE: _____

I. Find each product.

(a) 10 x 6.84 = 68.4
100 x 6.84 = 684
1000 x 6.84 = 6840

(b) 10 x 0.562 = 5.62
100 x 0.562 = 56.2
1000 x 0.562 = 562

(c) 10 x 9.2 = 92
100 x 9.2 = 920
1000 x 9.2 = 9200

(d) 10 x 6.5 = 65

(e) 100 x 0.32 = 32

(f) 1000 x 8.5 = 8500

II. Write a rule about multiplying decimals by 10, 100, or 1000.

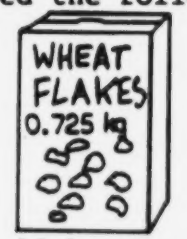
10 Move the decimal point one place to the right.

100 Move the decimal point two places to the right.

1000 Move the decimal point three places to the right.

III. To prepare for the opening of summer camp, the chef at Camp-By-The-Lakeside ordered the following breakfast cereals:

100 boxes ordered



10 boxes ordered

1000 boxes ordered

a. Find the total weight of each cereal ordered.

Raisin Greats = 68.7 kg Wheat Flakes = 7.25 kg Corn Delights = 575 kg

b. Raisin Greats are packed 25 boxes to each case. How much does each case weigh? 17.175 kg

c. Near the end of the summer, the chef ordered 375 boxes of Corn Delights. What was the total weight of this order? 215.625 kg

P.O. 6.07.06.02-.03

NAME: _____ CLASS: _____ DATE: _____

Estimate the products by rounding the factors to the nearest whole number. Then compute the exact products.

1. 3.824 rounds to 4
   x 0.9 rounds to 1
   3.4416 — 4 estimated product

2. 4.9 rounds to 5
   x2.3 rounds to 2
   11.27 — 10 estimated product

3. 5.21 rounds to 5
   x 3.8 rounds to 4
   19.798 — 20 estimated product

4. 14.6 rounds to 15
   x 5.7 rounds to 6
   83.22 — 90 estimated product

5. 6.123 rounds to 6
   x 0.8 rounds to 1
   4.8984 — 6 estimated product

6. 4.32 rounds to 4
   x 8.7 rounds to 9
   37.584 — 36 estimated product

7. 23.8 rounds to 24
   x 3.7 rounds to 4
   88.06 — 96 estimated product

8. 18.29 rounds to 18
   x 2.4 rounds to 2
   43.896 — 36 estimated product

Solve.

A. 3.854 x 3 = 11.562

B. 4.386 x 4 = 17.544

C. 6.32 x0.86 = 5.4352

D. 9.36 x 5.2 = 48.672

E. Explain how to determine where the decimal point is placed in the product.

Count the number of places after the decimal in both the multiplicand and the multilplier.

Place the decimal point in the product so that the same number of places is indicated.

P.O. 6.07.06.03&.04

NAME: _____ CLASS: _____ DATE: _____

A. Find each product.

1. 51.23 x 0.74 = 37.9102	2. 36.3 x 0.42 = 15.246	3. 0.789 x 6.2 = 4.8918
4. 6.9 x 0.85 = 5.865	5. 0.87 x 0.54 = 0.4698	6. 9.236 x 8 = 73.888
7. 0.8413 x 7 = 5.8891	8. 5.019 x 2.3 = 11.5437	9. 46.8 x 30.4 = 1422.72

B. Solve.

To prepare for a Flag Day celebration, our school is planning to give each student a colorful streamer. Find the amount needed for each grade(s).

	Number of Students	Length of Streamer	Total Meters
Gr.6	100	2.5m	250 m
Gr.5	10	3.25m	32.5 m
Gr.K-4	1000	2.75m	2750 m

The school's American flag is 21.5 ft long by 15.25 ft wide. What is the approximate area it will cover when it is displayed in the school auditorium? 330 sq ft

P.O. 6.07.07.01

Name _____ Class _____ Date _____

Follow the directions below.

1. If a line segment measures 78 mm, how long is that line in centimeters?
(1 cm = 10 mm)

The line is 7.8 cm long.

2. Find the number of meters in each of the following. (100 cm = 1 m)

562 cm = 5.62 m

2,840 cm = 28.4 m

63,587 cm = 635.87 m

22,056 cm = 220.56 m

3. Divide.

74.3 ÷ 10 = 7.43

74.8 ÷ 100 = 0.748

74.8 ÷ 1000 = 0.0748

826.7 ÷ 100 = 8.267

8.267 ÷ 10 = 0.8267

4. Find each quotient.

$100\overline{)635.75} = 6.3575$ $\qquad$ $1000\overline{)248.9} = 0.2489$

5. Use the code to fill in the letters.

863.4 ÷ 100 = D $\qquad$ 863.4 ÷ 1000 = G

51.87 ÷ 10 = O $\qquad$ 51.87 ÷ 100 = I

351.8 ÷ 1000 = N

G	O	O	D	G	O	I	N	G
0.8634	5.187	5.187	8.634	0.8634	5.187	0.5187	0.3518	0.8634

Do you remember?

Use a calculator to express each fraction as a decimal. Then use the results to compare each pair of fractions by placing < or > in the circle.

1. $\frac{7}{12} \bigcirc \frac{5}{9}$ $\qquad$ 2. $\frac{8}{15} \bigcirc \frac{4}{7}$ $\qquad$ 3. $\frac{11}{24} \bigcirc \frac{4}{9}$ $\qquad$ 4. $\frac{5}{6} \bigcirc \frac{7}{8}$

5. $\frac{9}{14} \bigcirc \frac{2}{3}$ $\qquad$ 6. $\frac{8}{9} \bigcirc \frac{17}{20}$ $\qquad$ 7. $\frac{13}{18} \bigcirc \frac{5}{7}$ $\qquad$ 8. $\frac{2}{9} \bigcirc \frac{1}{6}$

P.O. 6.07.07.02-.03

Name _____ Class _____ Date _____

Estimate each quotient by rounding the dividends to the nearest whole number. Then find the actual quotient.

1. Estimate: $28\frac{22}{37}$; $37\overline{)1058}$

   Actual: 28.6 ; $37\overline{)1058.2}$

2. Estimate: $35\frac{4}{15}$; $15\overline{)529}$

   Actual: 35.24 ; $15\overline{)528.6}$

3. Estimate: $963\frac{5}{8}$; $8\overline{)7709}$

   Actual: 963.58 ; $8\overline{)7708.64}$

4. Estimate: $26\frac{8}{24}$; $24\overline{)632}$

   Actual: 26.35 ; $24\overline{)632.4}$

5. Estimate: $106\frac{4}{6}$; $6\overline{)640}$

   Actual: 106.72 ; $6\overline{)640.32}$

6. Estimate: $17\frac{17}{28}$; $28\overline{)493}$

   Actual: 17.62 ; $28\overline{)493.36}$

P.O. 6.07.07.04

Name _____ Class _____ Date _____

Mixed Problem Solving

1. Mr. Caldwell delivered 27 cartons of cotton balls to Peaceful Manufacturing Co. Each carton weighed 2.143 pounds. How much did the total delivery weigh?

   The delivery weighed 57.861 lb.

2. Mr. Caldwell's next stop was a bat delivery from Billy Bats, Inc. The carton of three dozen bats weighed 77.04 pounds. How much did each bat weigh?

   Each bat weighed 2.14 pounds.

3. He went for lunch to Dinah's Diner which was only 6280 cm away from Billy Bats, Inc. How many meters did he walk?

   He walked 62.8 meters.

4. Mr. Caldwell had a tuna fish sandwich for $3.25 and two soft drinks for $.89 each. How much did he spend in all?

   He spent $5.03.

5. He dropped a box of 72 No.2 pencils which weighed 73.44 ounces. What was the weight of each pencil?

   Each pencil weighed 1.02 oz.

6. He traveled a total of 93.66 kilometers to make 6 deliveries. If the distance between each stop was the same, how far apart were the stops?

   The stops were 15.61 km apart.

SHARPENING YOUR SKILLS

Units 49, 50, 51

Name: _____ **Class:** _____ **Date:** _____

1.
$$\begin{array}{r} 24.682 \\ 8.2041 \\ +13.5623 \\ \hline \end{array}$$

● 46.4484 ⓒ 464,484
ⓑ 46.4486 ⓓ Not Here

2. Estimate the sum.

$$\begin{array}{r} 34.8765 \\ 5.009 \\ +\ 0.0222 \\ \hline \end{array}$$

ⓔ 44 ● 40
ⓕ 34 ⓗ Not Here

3. Estimate the difference.

$$\begin{array}{r} 29.0006 \\ -\ 8.9 \\ \hline \end{array}$$

● 20 ⓒ 30
ⓑ 38 ⓓ Not Here

4.
$$\begin{array}{r} 178.09 \\ -\ 29.8812 \\ \hline \end{array}$$

ⓔ 148.2008 ⓖ 148.2112
ⓕ 207.9712 ● Not Here

5. Complete the following examples.

a. 10 x 3.87 = 38.7
b. 10 x 45.2 = 452
c. 100 x 2.34 = 234
d. 100 x 12.3 = 1230
e. 1000 x 0.24 = 240

6. Which example below will have an estimated product of 24?

ⓐ 3.2 x 7.29 ● 6.4 x 4.223
ⓑ 8.12 x 4.1 ⓓ Not Here

7.
$$\begin{array}{r} 3.84 \\ \times 0.25 \\ \hline \end{array}$$

ⓔ 960 ⓖ 9.6
● 0.96 ⓗ Not Here

8. Complete the following examples.

a. 45.8 ÷ 10 = 4.58
b. 355.6 ÷ 100 = 3.556
c. 23.89 ÷ 10 = 2.389
d. 84.4 ÷ 1000 = 0.0844
e. 76.6 ÷ 100 = 0.766

9.
$$21\overline{)97.02} \quad 4.62$$

10. Mrs. Chin cut seven lengths of ribbon. Each piece of ribbon was 5.75 dm long. What was the total length of all the ribbon?

40.25 dm

11. The area of a rectangular room is 117.6 square feet. If the length is 12 feet, what is the width of the room?

9.8 feet

P.O. 6.07.08.01

NAME: _____ CLASS: _____ DATE: _____

Multiply by an equivalent of 1 to make each example into a division by a whole number.

1. 6.5 + 1.3 =

$\frac{6.5}{1.3} = \frac{6.5}{1.3} \times \frac{10}{10} = \frac{65}{13}$

6.5 ÷ 1.3 = 65 ÷ 13

2. 1.68 + 0.52 =

$\frac{1.68}{0.52} = \frac{1.68}{0.52} \times \frac{100}{100} = \frac{168}{52}$

1.68 ÷ 0.52 = 168 ÷ 52

3. 7.2 + 3.6 =

$\frac{7.2}{3.6} = \frac{7.2}{3.6} \times \frac{10}{10} = \frac{72}{36}$

7.2 ÷ 3.6 = 72 ÷ 36

4. 5.1 + 1.7 =

$\frac{5.1}{1.7} = \frac{5.1}{1.7} \times \frac{10}{10} = \frac{51}{17}$

5.1 ÷ 1.7 = 51 ÷ 17

5. 0.66 + 0.11 =

$\frac{0.66}{0.11} = \frac{0.66}{0.11} \times \frac{100}{100} = \frac{66}{11}$

0.66 ÷ 0.11 = 66 ÷ 11

6. 5.7 + 1.9 =

$\frac{5.7}{1.9} = \frac{5.7}{1.9} \times \frac{10}{10} = \frac{57}{19}$

5.7 ÷ 1.9 = 57 ÷ 19

7. 2.24 + 0.8 =

$\frac{2.24}{0.8} = \frac{2.24}{0.8} \times \frac{10}{10} = \frac{22.4}{8}$

2.24 ÷ 0.8 = 22.4 ÷ 8

8. 4.75 + 2.5 =

$\frac{4.75}{2.5} = \frac{4.75}{2.5} \times \frac{10}{10} = \frac{47.5}{25}$

4.75 ÷ 2.5 = 47.5 ÷ 25

Do you remember?

What is the sample space for the compound event of spinning the spinner and rolling a die at the same time?

Sample Space for Spinning the Spinner and Rolling a Die

(red, 1)	(black, 1)	(blue, 1)
(red, 2)	(black, 2)	(blue, 2)
(red, 3)	(black, 3)	(blue, 3)
(red, 4)	(black, 4)	(blue, 4)
(red, 5)	(black, 5)	(blue, 5)
(red, 6)	(black, 6)	(blue, 6)

P.O. 6.07.08.02

NAME: _____ CLASS: _____ DATE: _____

Estimate each quotient by rounding to the nearest whole number.

1. 55.7 rounds to 56
   7.5 rounds to 8

   8 | 56

   The estimated quotient is 7.

2. 18.43 rounds to 18
   2.31 rounds to 2

   The estimated quotient is 9.

3. 17.15 rounds to 17
   16.66 rounds to 17

   The estimated quotient is 1.

4. 15.48 rounds to 15
   4.50 rounds to 5

   The estimated quotient is 3.

5. 3.16 rounds to 3
   0.85 rounds to 1

   The estimated quotient is 3.

6. 16.36 rounds to 16
   4.1 rounds to 4

   The estimated quotient is 4.

7. 17.52 rounds to 18
   2.7 rounds to 3

   The estimated quotient is 6.

8. 22.072 rounds to 22
   10.5 rounds to 11

   The estimated quotient is 2.

P.O. 6.07.08.03

NAME: _____ **CLASS:** _____ **DATE:** _____

Make an equivalent example with a whole number divisor. Divide and check.

1. $0.31\overline{)15.5} = 31\overline{)1550}$

divide	check
$31\overline{)1550}$ quotient 50, -155, 0	$0.31 \times 50 = 15.50$

2. $2.6\overline{)5.72} = 26\overline{)57.2}$

divide	check
$26\overline{)57.2}$ quotient 2.2	

3. $3.6\overline{)345.6} = 36\overline{)3456}$

divide	check
$36\overline{)3456}$ quotient 96	

4. $5.7\overline{)4.389} = 57\overline{)43.89}$

divide	check
$57\overline{)43.89}$ quotient 0.77	

5. $37.5\overline{)416.25} = 375\overline{)4162.5}$

divide	check
$375\overline{)4162.5}$ quotient 11.1	

6. $28.7\overline{)1463.7} = 287\overline{)14637}$

divide	check
$287\overline{)14637}$ quotient 51	

CHALLENGE!

Khasif read an advertisement that offered a special sale on 144 square feet of carpeting at a cost of $449.99. The regular cost of the same carpeting is $3.59 per square foot. What is the cost per square foot during this special sale? $3.12

His mother wants to carpet a room that measures 12 ft by $10\frac{1}{2}$ ft. Will she save money by buying the carpet at the special sale price or should she pay the regular price per square foot? Sale price is cheaper.

P.O. 6.07.08.04

NAME: _____ CLASS: _____ DATE: _____

Read the story and use the information to answer the questions below.

A "Modernizing New York" program is seeking to repave and update many of New York's highways. Below is some information about the needs of the project and some questions based on this information.

Belt Parkway - 4.7 miles to be repaved requires 82.72 tons of asphalt

East River Drive - 5.1 miles to be repaved will cost a total of 9.18 million dollars

Eastern Parkway - runs through Brooklyn for 7.7 miles

Staten Island Expressway - 3.5 miles to be repaved requires 50.75 tons of asphalt

Brooklyn - Queens Expressway - 13.6 miles requires 131.92 hours of work

1. How much asphalt per mile will the Belt Parkway need?

17.6 tons

2. How many miles will be repaired in all?

26.9 miles

3. How many hours are needed to fix each mile on the Brooklyn-Queens Expressway?

9.7 hours

4. What's the difference in the amount of asphalt per mile needed on the Belt Parkway and on the Staten Island Expressway?

31.97 tons

5. How many millions of dollars will the East River Drive cost per mile?

1.8 million dollars

6. Which road above is not scheduled for repairs?

Eastern Parkway

P.O. 6.06.06.01-.02&.04

NAME: _____ CLASS: _____ DATE: _____

For numbers 1 through 6, estimate, then solve. For numbers 7 and 8, solve the problem.

1.

	Estimate	Actual
$2\frac{3}{8}$	2	
$+5\frac{1}{4}$	+5	$7\frac{5}{8}$
	7	

2.

	Estimate	Actual
$12\frac{2}{3}$	13	
$+8\frac{3}{4}$	+9	$21\frac{5}{12}$
	22	

3.

	Estimate	Actual
$4\frac{2}{7}$	4	
$+8\frac{3}{4}$	+9	$13\frac{1}{28}$
	13	

4.

	Estimate	Actual
$17\frac{5}{6}$	18	
$+4\frac{1}{8}$	+4	$21\frac{23}{24}$
	22	

5.

	Estimate	Actual
$9\frac{5}{6}$	10	
$+4\frac{1}{2}$	+5	$14\frac{1}{3}$
	15	

6.

	Estimate	Actual
$8\frac{3}{12}$	8	
$+6\frac{3}{4}$	+7	15
	15	

7. Jeremy mixed $3\frac{3}{8}$ cups of water with $2\frac{1}{3}$ cups of orange juice concentrate. Is his 6-cup container large enough to hold all of the mixture? How much liquid is there?

Yes, it will hold the $5\frac{17}{24}$ cups of juice.

8. If you walk $1\frac{3}{4}$ miles, stop to rest for 15 minutes, then walk $2\frac{1}{5}$ miles, exactly how far have you walked?

$3\frac{19}{20}$ miles

P.O. 6.06.06.01&.03-.04

NAME: _____ CLASS: _____ DATE: _____

For examples 1 through 6, estimate, then solve. For examples 7 and 8, solve the problem.

1.

	Estimate	Actual
$12\frac{3}{8}$	12	
$-5\frac{1}{2}$	-6	$6\frac{7}{8}$
	6	

2.

	Estimate	Actual
$23\frac{2}{3}$	24	
$-18\frac{7}{8}$	-19	$4\frac{19}{24}$
	5	

3.

	Estimate	Actual
$4\frac{2}{5}$	4	
$-1\frac{3}{4}$	-2	$2\frac{13}{20}$
	2	

4.

	Estimate	Actual
$19\frac{5}{6}$	20	
$-18\frac{7}{8}$	-19	$\frac{23}{24}$
	1	

5.

	Estimate	Actual
$4\frac{3}{5}$	5	
$-1\frac{11}{12}$	-2	$2\frac{41}{60}$
	3	

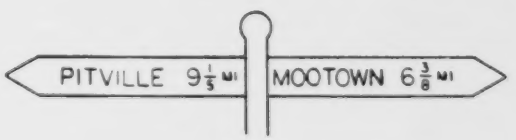
6.

	Estimate	Actual
$11\frac{1}{3}$	11	
$-3\frac{5}{9}$	-4	$7\frac{7}{9}$
	7	

7. Jimmy thought he had worked for about $6\frac{1}{2}$ hours. Actually, he had only worked $4\frac{5}{6}$ hours. What is the difference between his guess and the real time worked?

$1\frac{2}{3}$ hours

8.



How much closer is Mootown than Pitville? $2\frac{33}{40}$ mi

P.O. 6.06.06.02-.04

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

1. Find the next number in the sequence.

$2\frac{1}{2}$, $4\frac{3}{8}$, $6\frac{1}{4}$, $8\frac{1}{8}$

2. Find the difference between $54\frac{2}{3}$ and $12\frac{14}{15}$.

The difference is $41\frac{11}{15}$.

3. Find the sum.

$$\begin{array}{r} 15\frac{9}{10} \\ +3\frac{1}{6} \\ \hline 19\frac{1}{15} \end{array}$$

4. Find the difference.

$$\begin{array}{r} 8\frac{5}{11} \\ -6\frac{1}{2} \\ \hline 1\frac{21}{22} \end{array}$$

Use the chart to answer questions 5-8.

Sarah's Weekly Study Schedule

Science - $1\frac{3}{4}$ hours	Social Studies - $1\frac{1}{2}$ hours
Mathematics - $3\frac{7}{8}$ hours	Reading - $3\frac{3}{4}$ hours
Spelling - $1\frac{1}{3}$ hours	

5. How much more time does Sarah spend studying mathematics than social studies?

$2\frac{3}{8}$ hr

6. How much time is spent on spelling and reading together?

$5\frac{1}{12}$

7. How much more time is spent on math and science together than on spelling and reading together?

$\frac{13}{24}$ hr

8. How much time does Sarah spend on science, math, and spelling in all?

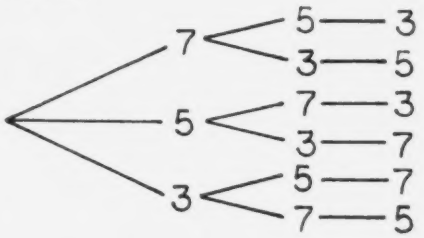
$6\frac{23}{24}$

P.O. 6.12.06.01

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

1. Draw a tree diagram to show all the 3-digit numbers which can be made from the digits 7, 5, and 3, using each digit only once each time. How many are there?



6 different 3-digit numbers can be made.

2. In how many ways can we arrange the letters P, Q, R, and S? Show the arrangements.

PQRS	QPRS	RPQS	SPQR
PQSR	QPSR	RPSQ	SPRQ
PRQS	QRPS	RSPQ	SQPR
PRSQ	QRSP	RSQP	SQRP
PSQR	QSPR	RQPS	SRPQ
PSRQ	QSRP	RQSP	SRQP

24 arrangements

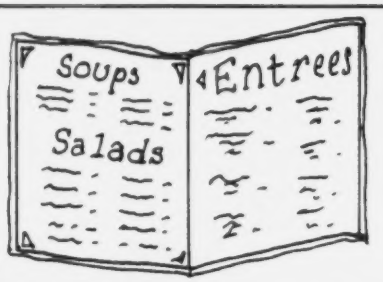
3. Bonnie's last address had the numbers 7, 3, 1, and 9. List all the permutations of those digits here.

7319	3719	1739	9731
7391	3791	1793	9713
7139	3179	1379	9371
7193	3197	1397	9317
7913	3971	1973	9173
7931	3917	1937	9137

On Bonnie's house, the ones digit was 9 times the thousands digit, and the hundreds digit was 4 less than the tens digit. Which address is Bonnie's?

1379

4.



A meal might consist of soup, salad, and entree. In what different orders can the meal be eaten, making sure we have all three courses?

soup, salad, entree

soup, entree, salad

salad, soup, entree

salad, entree, soup

entree, soup, salad

entree, salad, soup

P.O. 6.12.06.02

NAME: _____ CLASS: _____ DATE: _____

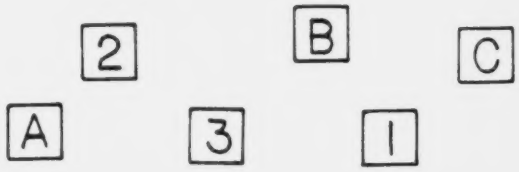
Follow the directions below.

1.

A B

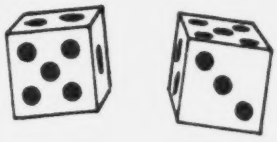
Coin A can land in 1 of 2 ways.
Coin B can land in 1 of 2 ways.
If coins A and B are tossed, in how many different ways can they land? 4

2.

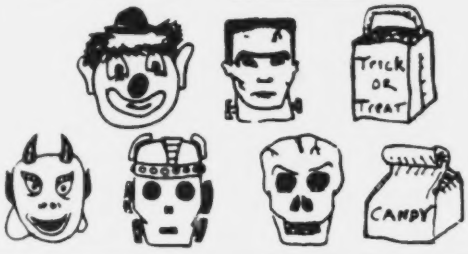


A letter can be chosen in 3 ways.
A number can be chosen in 3 ways.
There are 9 different ways to choose a number and letter.

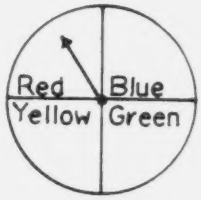
3. A die can land in one of 6 ways. A second die can also land in one of 6 ways. How many ways can they land together? 36

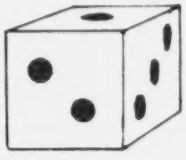


4. Betty can choose one of the Halloween masks and one of the Trick-or-Treat bags. How many different ways can she pick a mask and a bag? 10



5.





How many different outcomes are possible when the spinner is spun and the die is tossed? 24

6. Tony has 6 pairs of pants and 7 shirts. How many different outfits can he make? 42

P.O. 6.12.06.03

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

1.

Judy only has enough money to buy three items in the supermarket. What combinations of things can she buy?

cereal, soup, spaghetti

cereal, soup, potato chips

cereal, soup, light bulbs

cereal, spaghetti, potato chips

cereal, spaghetti, light bulbs

cereal, potato chips, light bulbs

soup, spaghetti, potato chips

soup, spaghetti, light bulbs

soup, potato chips, light bulbs

spaghetti, potato chips, light bulbs

3.

A, B, C, D, E, F

List the different combinations of two letters each that can be made from the six letters listed above.

A,B B,C C,D D,E E,F

A,C B,D C,E D,F

A,D B,E C,F

A,E B,F

A,F

2.

Corey		Ivy
David	Fay	Jean

Two students will be chosen to be monitors for Ms. Chin. How many different combinations are there? 10 **What are they?**

Corey, David Fay, Ivy

Corey, Fay Fay, Jean

Corey, Ivy

Corey, Jean Ivy, Jean

David, Fay

David, Ivy

David, Jean

4. There are 6 cubes in a bag. They are yellow, white, green, blue, black, and brown. If 4 are chosen without looking, what are the possible combinations?

y, w, g, bl w, g, bl, bk

y, w, g, bk w, g, bl, br

y, w, g, br w, g, bk, br

y, w, bl, bk w, bl, bk, br

y, w, bl, br g, bl, bk, br

y, w, bk, br

y, g, bl, bk

y, g, bl, br

y, g, bk, br

y, bl, bk, br

P.O. 6.12.06.04

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

1.

Sima	Vera
Tito	Wilson
Ursula	Xavier

Two of the 6 students above will be chosen to go on a trip to the World Trade Center. What is the probability that Vera and Tito will be chosen?

The probability is $\frac{1}{15}$.

2.

Ann will set up these three cubes without looking. What is the probability that the cubes will be placed in the order above?

The probability is $\frac{1}{6}$.

3.

C A B

If the three letters above fell off the bulletin board, what is the probability that they will spell the word "CAB" when they land.

The probability is $\frac{1}{6}$.

4. The digits 1, 2, 3, and 4 are arranged in random order. What is the probability that they will form the numbers 3214 or 4321?

The probability is $\frac{1}{12}$.

5. There are four people, Minnie, Nat, Olivia, and Pete, waiting for a bus. They are standing in no particular order. When the bus stops, what is the probability they will board the bus in the following order: Olivia, Nat, Pete, and then Minnie?

The probability is $\frac{1}{24}$.

6. GOOD HOUSEKEEPING
TV GUIDE
GAMES
GOOD FOOD

Two of the above magazines will be ordered at random. What is the probability that they will be TV Guide and Good Food.

The probability is $\frac{1}{6}$.

SHARPENING YOUR SKILLS

Units 52, 53, 54

Name: _____ **Class:** _____ **Date:** _____

1. Which of the following is equivalent to 2.6 + 0.2?

(a) 26 + 0.2 (c) 0.2 + 2.6
● 26 + 2 (d) Not Here

2. $0.3\overline{)4.59}$

(e) 1.53 ● 15.3
(f) 153 (h) Not Here

3. $2.5\overline{)33.75}$

● 13.5 (c) 135
(b) 1.35 (d) Not Here

4. $3\frac{3}{8} + 1\frac{3}{4} = 5\frac{1}{8}$

5. Jean ran $3\frac{9}{10}$ miles on Monday and $2\frac{4}{5}$ miles on Wednesday. About how many miles did she run both days?

(e) 4 ● 7
(f) 5 (h) Not Here

6. Jason bought 1.5 pounds of roast beef. How many sandwiches can he make if he uses 0.25 pound of roast beef on each sandwich?

6

7. $7\frac{1}{2} - 3\frac{3}{5} = 3\frac{9}{10}$

8. How many different ways can Dave, Ed, and Fred line up outside their classroom?

6

9. How can many different committees of two students can be formed from a group of 6 students?

15

10. If a 3-digit number is formed from the digits 7, 8, and 9, what is the probability that the number will be less than 800?

$\frac{1}{3}$

11. Create and solve a problem that involves subtracting mixed numerals with unlike denominators.

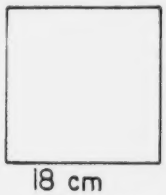
Answers will vary.

P.O. 6.10.06.01-02

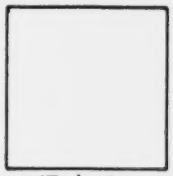
NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

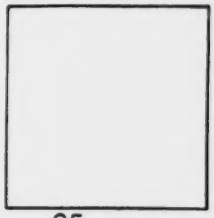
I. Find the perimeter of each square.

(a) 

(a) 72 cm

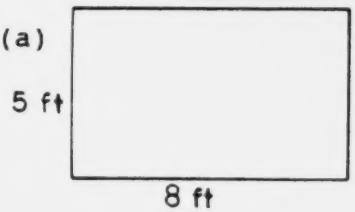
(b) 

(b) 52 in.

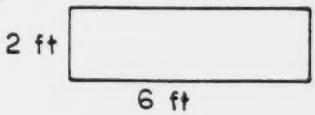
(c) 

(c) 100 cm

II. Find the perimeter of each rectangle.

(a) 

(a) 26 ft

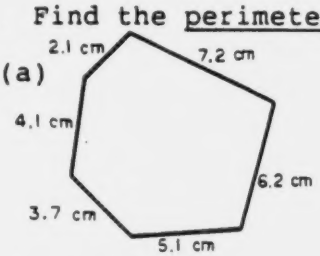
(b) 

(b) 16 ft

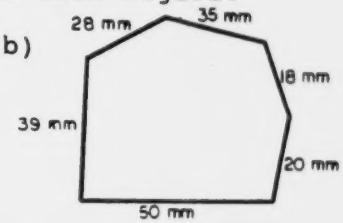
(c)

(c) 27.4 m

III. Find the perimeter of each figure.

(a) 

(a) 28.4 cm

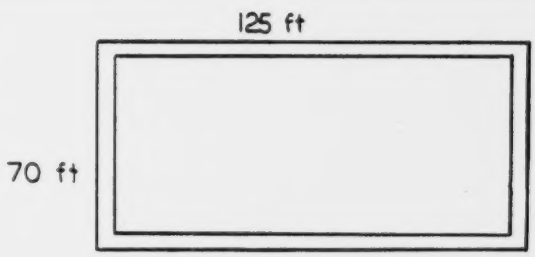
(b) 

(b) 190 mm

(c)

(c) 55 m

IV. Tippy and Gabby work at the Shea Stadium parking lot. To prepare for the new season, they are painting a yellow border around one of the rectangular lots. Use your pencil as a paint brush to help Tippy and Gabby complete painting the border of the parking lot. What is the perimeter?

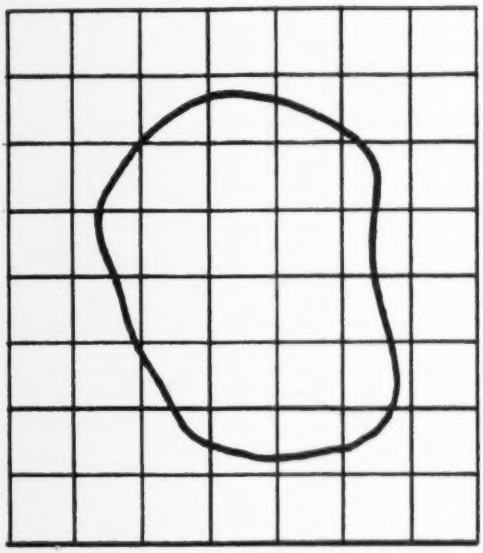


The perimeter is 390 ft

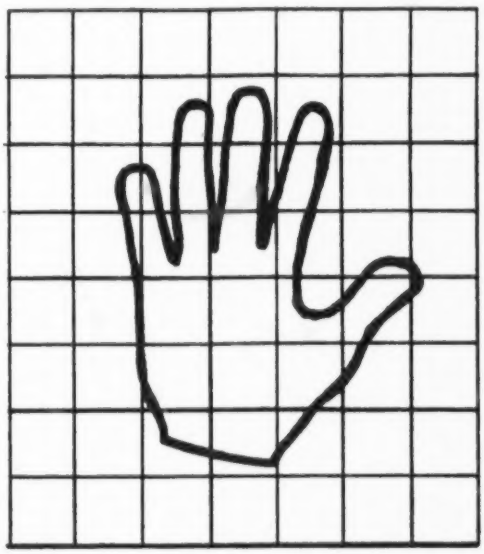
P.O. 6.10.07.01

NAME: _____ CLASS: _____ DATE: _____

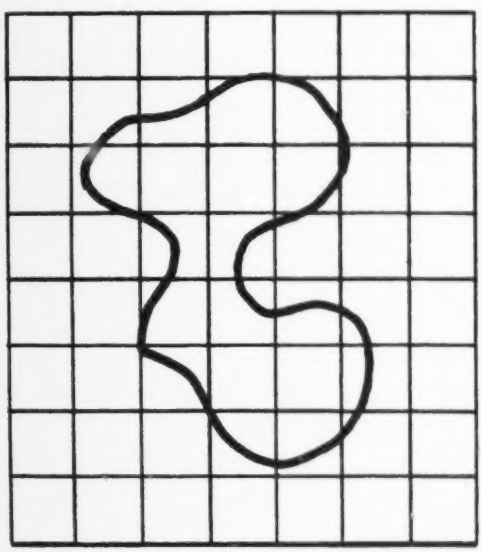
Estimate the area of each irregular shape by counting the squares.



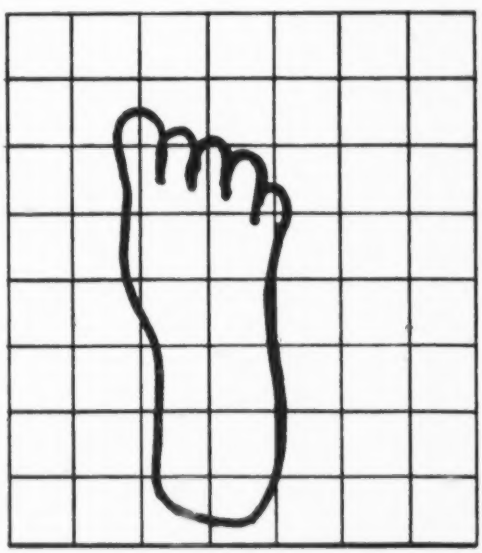
The estimated area is ___*___ cm^2.



What is the approximate area covered by the hand? ___*___



The estimated area is ___*___ cm^2.



What is the approximate area covered by the foot? ___*___

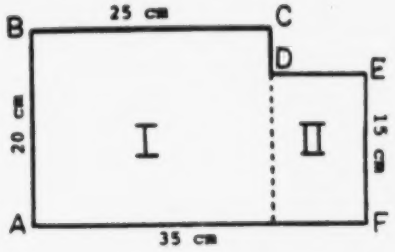
* Answers may vary.
Accept all reasonable answers.

P.O. 6.10.07.02

NAME: _____ CLASS: _____ DATE: _____

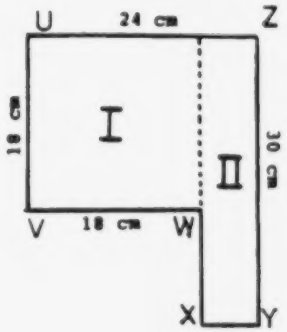
Find the area of each of the smaller rectangles and then the total of each rectilinear figure.

1.



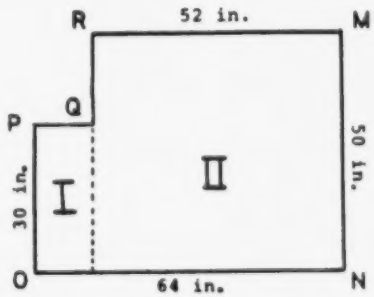
Area of I = 500 cm^2
Area of II = 150 cm^2
Total Area = 650 cm^2

2.



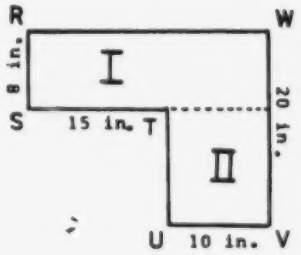
Area of I = 324 cm^2
Area of II = 180 cm^2
Total Area = 504 cm^2

3.



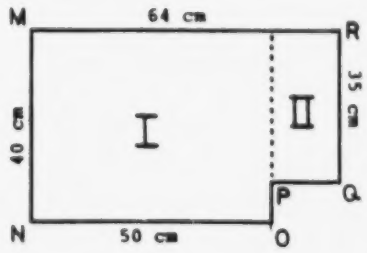
Area of I = 360 sq in.
Area of II = 2600 sq in.
Total Area = 2960 sq in.

4.



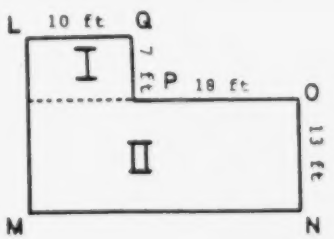
Area of I = 200 sq in.
Area of II = 120 sq in.
Total Area = 320 sq in.

5.



Area of I = 2000 cm^2
Area of II = 490 cm^2
Total Area = 2490 cm^2

6.



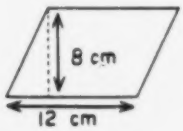
Area of I = 70 sq ft
Area of II = 364 sq ft
Total Area = 434 sq ft

P.O. 6.10.08.01-.02

NAME: _____ CLASS: _____ DATE: _____

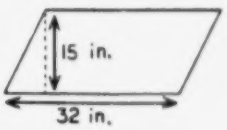
I. Use the appropriate formula to find the area of each parallelogram below.

1.



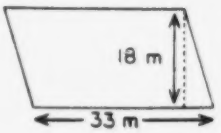
A = b x h
A = 12 cm x 8 cm
A = 96 cm^2

2.



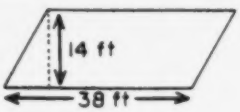
A = 480 sq in.

3.



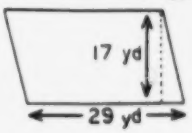
A = 594 m^2

4.



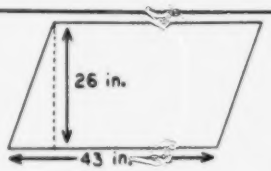
A = 532 sq ft

5.



A = 493 sq yd

6.



A = 1118 sq in.

II. Use the appropriate formula to find the area of each triangle below.

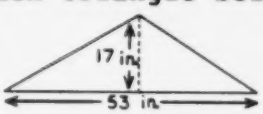
7.

A = 78 cm^2

8.

A = 200 m^2

9.

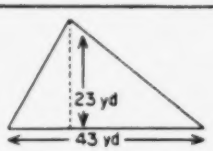


A = 450.5 sq in.

10.

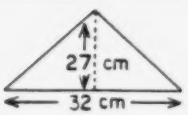
A = 351.5 sq ft

11.



A = 494.5 sq yd

12.



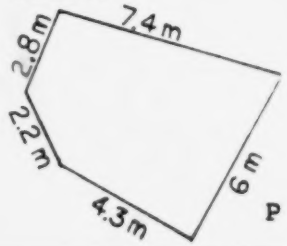
A = 432 cm^2

SHARPENING YOUR SKILLS

Units 55, 56, 57

Name: _____ **Class:** _____ **Date:** _____

1. Find the perimeter of the figure below.

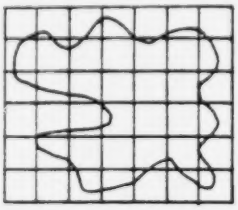


P = 22.7 m

2. The perimeter of a triangle is 36 meters. One side measures 12 meters and another side measures 9 meters. What is the measure of the third side of this triangle?

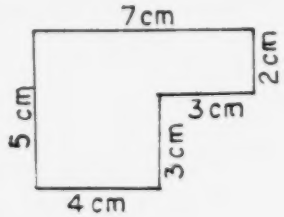
15 m

3. Estimate the area of the figure below.



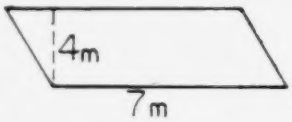
Estimated Area = * sq units

4. Find the area and the perimeter of the figure below.



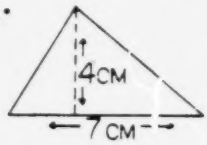
Area = 26 cm^2 Perimeter = 24 cm

5. The area of the parallelogram below is _____.



(a) 22 sq m (c) 14 sq m
● 28 sq m (d) Not Here

6. The area of the triangle below is _____.



(e) 28 sq cm (g) 18 sq cm
● 14 sq cm (h) Not Here

7. Mr. Black purchased carpeting for two rooms in his house. One room measured 4 yards long and 4 yards wide. The other room measured 5 yards long and 4 yards wide. The carpet cost $24.00 per square yard. Find the total cost to carpet both rooms.

$864.00

8. The area of a parallelogram is 36.9 square meters. If the base measures 9 meters, what is the measure of the height of the parallelogram?

(a) 332.1 sq m ● 4.1 m
(b) 91.8 m (d) Not Here

*Answers may vary. Accept all reasonable answers.

P.O. 6.10.09.01-.03

NAME: _____ CLASS: _____ DATE: _____

Answer each question using a full sentence.

1. If an object is measured in inches, how is its volume expressed?

   Its volume is expressed in cubic inches (cu in. or $in.^3$).

2. When we measure an object in centimeters, how do we express its volume?

   We express its volume in cubic centimeters (cm^3).

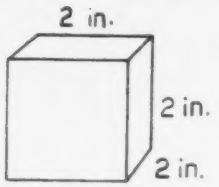
3. How might we express the volume of a cube if the side is measured in feet?

   We express its volume in cubic feet (cu ft or ft^3).

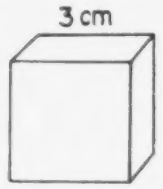
4. What formula would we use to find the volume of a cube?

   We would use the formula: Volume = s^3.

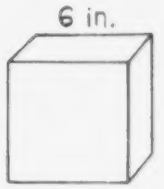
Find the volume of each cube.

5. 

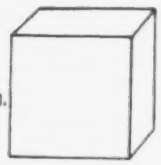
   Volume = $8\ in.^3$

6. 

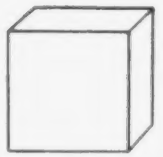
   Volume = $27\ cm^3$

7. 

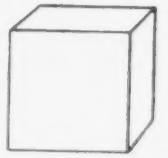
   Volume = $216\ in.^3$

8. 

   Volume = $1\ in.^3$

9. 

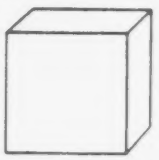
   Volume = $343\ cm^3$

10. 

    Volume = $1000\ ft^3$

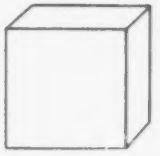
CHALLENGE!

The volume is given for each cube. Find the length of one edge for each.



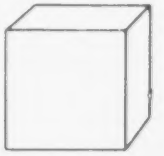
Volume = $729\ in.^3$

edge = 9 in.



Volume = $216\ cm^3$

edge = 6 cm



Volume = $1728\ in.^3$

edge = 12 in.

P.O. 6.10.09.04-.06

NAME: _____ CLASS: _____ DATE: _____

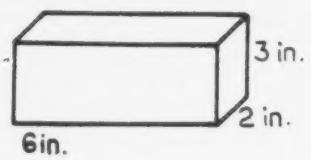
Follow the directions below.

1. Write the formula for the volume of a rectangular prism.

_____

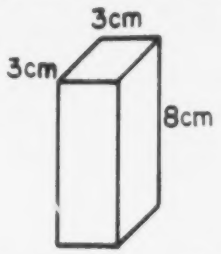
Find the volume of each rectangular prism below.

2.



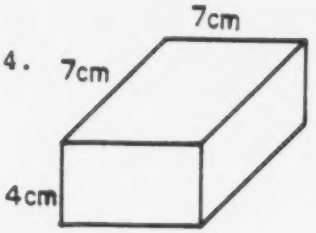
V = 36 in.^{3}

3.



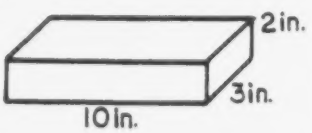
V = 72 cm^3

4.



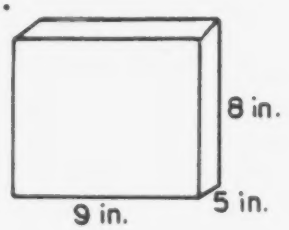
V = 196 cm^3

5.



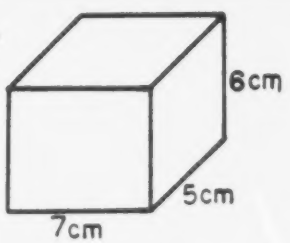
V = 60 in.^{3}

6.



V = 360 in.^{3}

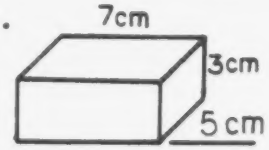
7.



V = 210 cm^3

Given the volume, find the measure of the missing side.

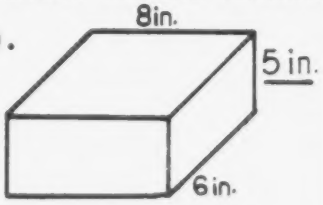
8.



V = 105 cm^3

side = 5 cm

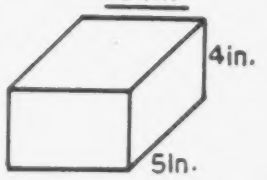
9.



V = 240 in.^{3}

side = 5 in.

10.



V = 120 in.^{3}

side = 6 in.

Fill an empty 1-qt milk container with water using a measuring cup which measures in milliliters. What is its approximate volume in milliliters?

1000 mL

P.O. 6.10.09.07-.08

NAME: _____ **CLASS:** _____ **DATE:** _____

A. Find the volume of each item below by filling it with water from a metric measuring container.

1. A $10\frac{3}{4}$ oz soup can will hold about 375 mL of water.

2. A $31\frac{3}{4}$ oz spaghetti sauce jar will hold about 1000 mL of water.

B. Solve the problem below.

3. Jackie measures a tissue box and finds that it is 9 inches long, 3 inches high, and 5 inches wide. What is its volume? 135 $in.^3$

Use the chart to solve the following problems.

Hot Cocoa Mix:	12 cm high, 19 cm long, 5 cm wide
Fruit Rollers:	14 cm long, 3 cm wide, 18 cm high
Butter Cookies:	26 cm long, 4 cm high, 13 cm wide
Onion Rounds:	20 cm high, 14 cm long, 5 cm wide

3. What is the volume, in cubic centimeters, of a box of Fruit Rollers?

756 cm^3

4. How many milliliters of water will fill the box that holds Onion Rounds?

1400 mL

5. Bonnie and Marion lined the empty boxes from Cocoa Mix and Butter Cookies with plastic bags and then filled them with water. They started with a full liter of water. How many milliliters did they use to fill both boxes?

2492 mL

Do you remember?

Solve each of the following.

10 x 18.24 = 182.4

100 x 18.24 = 1824

1000 x 18.24 = 18,240

18.24 ÷ 10 = 1.824

18.24 ÷ 100 = 0.1824

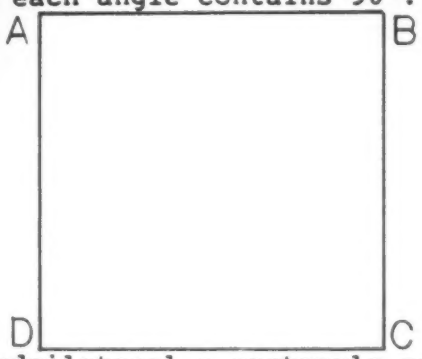
182.4 ÷ 1000 = 0.1824

P.O. 6.09.03.01

NAME: _____ CLASS: _____ DATE: _____

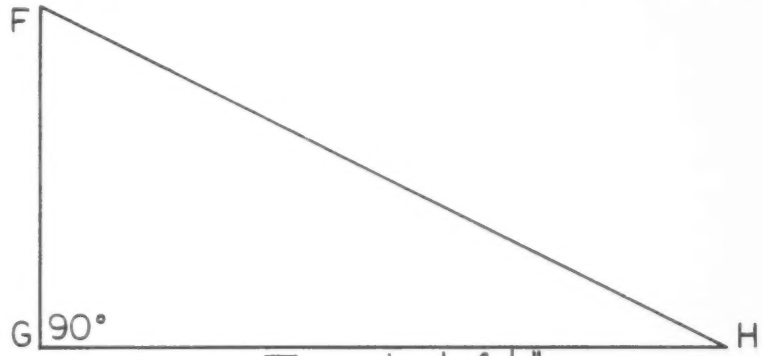
Follow the directions below.

I. a. Construct quadrilateral ABCD, such that each side measures 2 inches and each angle contains 90°.



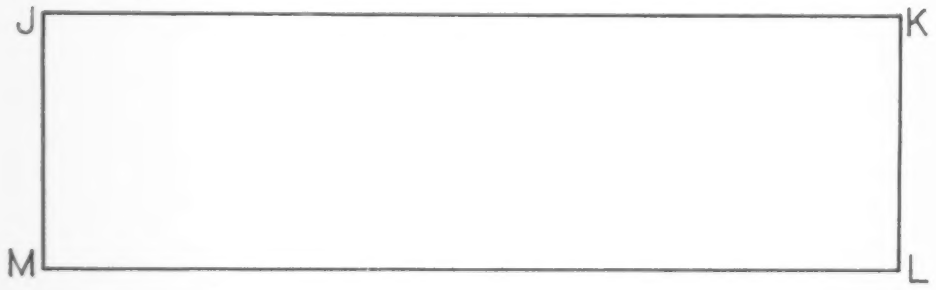
b. Is this quadrilateral a rectangle or a square? square

II.a. Construct triangle FHG, such that FG = 2", ∠G = 90°, and GH = 4".



b. Approximately how long is $\overline{FH}$? about $4\frac{1}{2}$"

III. a. Construct quadrilateral JKLM such that JK = 5 in., LM = 5 in., KL = $1\frac{1}{2}$ in., and ∠J and ∠L each contain 90°.



b. How many degrees does ∠M contain? 90°

c. Is this quadrilateral a rectangle or a square? rectangle

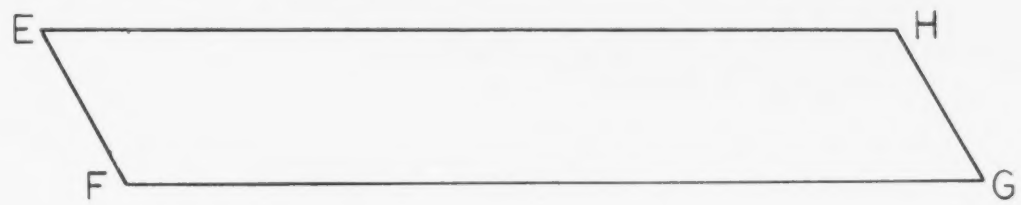
P.O. 6.09.03.02

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below:

I. a. Construct quadrilateral EFGH such that:

EF = 1 in. GH = 1 in. ∠E contains 30°
FG = 5 in. ∠G contains 30° ∠F contains 150°

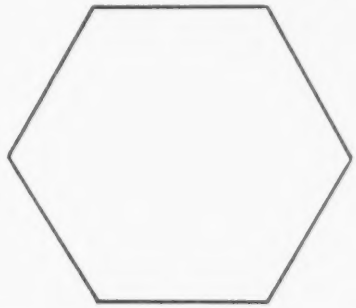


b. What is the measure of ∠H? ∠H = 150°

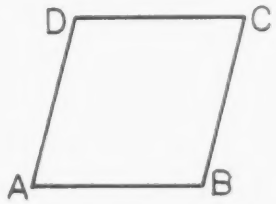
c. What is the measure of line segment HE? HE = 5 in.

d. Is this quadrilateral a rectangle or a parallelogram?
parallelogram

II. Use a protractor to draw a regular hexagon in which each side measures 1 inch and each angle contains 120°.



III. a. Construct rhombus ABCD so that each side measures 1 inch, ∠A and ∠C each contain 75°, and ∠B and ∠D each contain 105°.



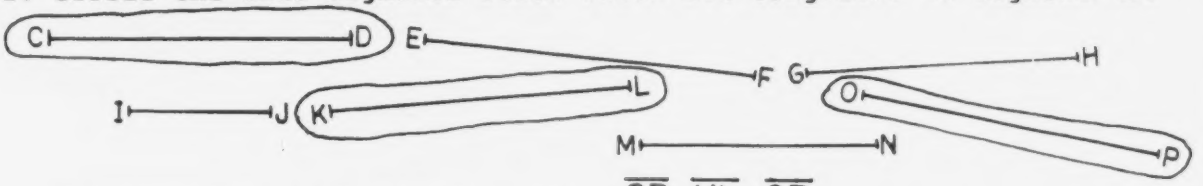
b. Briefly explain why this rhombus cannot be a square? _____
The angles do not measure 90° each.

P.O. 6.09.04.01-.02

NAME: _____ CLASS: _____ DATE: _____

Follow the directions below.

I. Circle the line segments below which are congruent to segment AB.

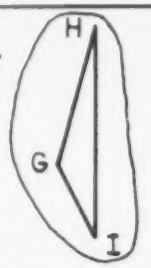


The congruent line segments are $\overline{CD}$, $\overline{KL}$, $\overline{OP}$.

II. Circle the angles which are congruent to angle P.

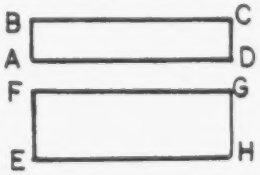
The congruent angles are ∠R and ∠S.

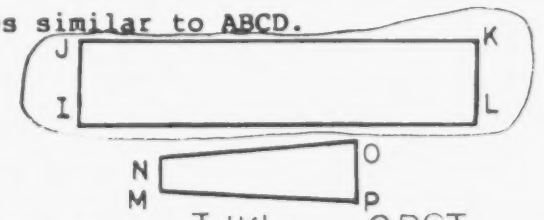
III. Circle the triangle which is congruent to ABC.

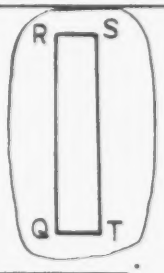


IV. Put a square around the circle which is congruent to circle A.

V. Circle the rectangles similar to ABCD.







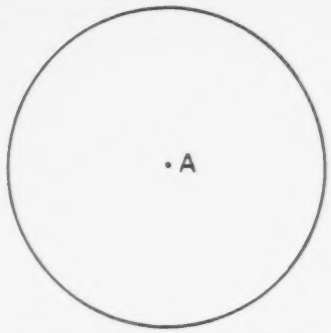
The similar rectangles are IJKL, QRST.

P.O. 6.09.04.03

NAME: _____ CLASS: _____ DATE: _____

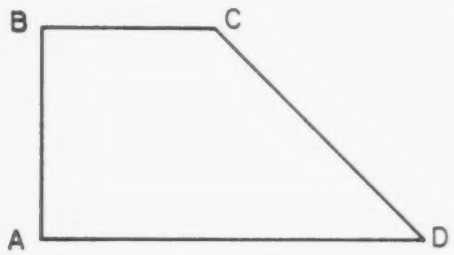
For each figure below, construct a congruent figure in the box next to it.

1.

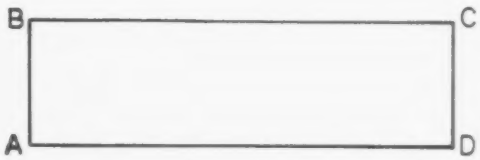


2.

3.



4.

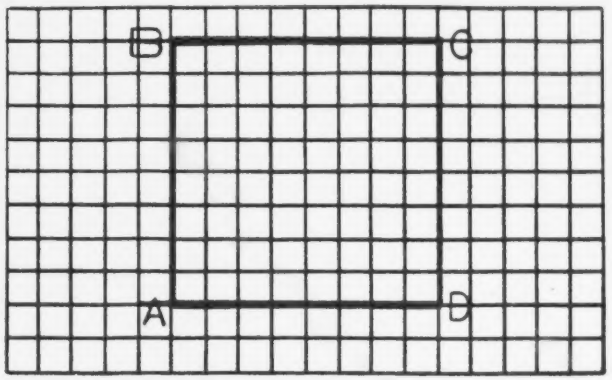


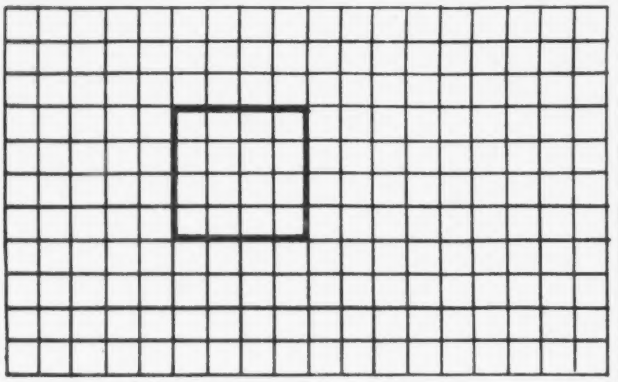
P.O. 6.09.04.04

NAME: _____ CLASS: _____ DATE: _____

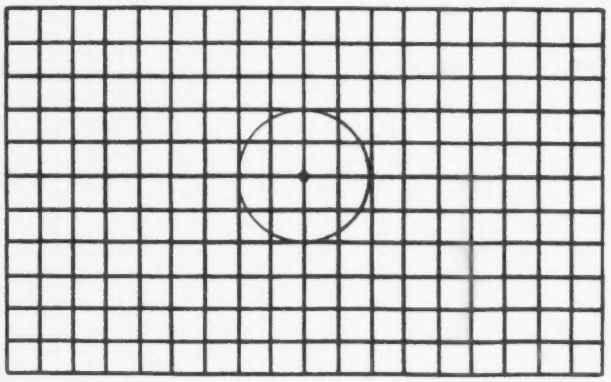
Follow the directions below.

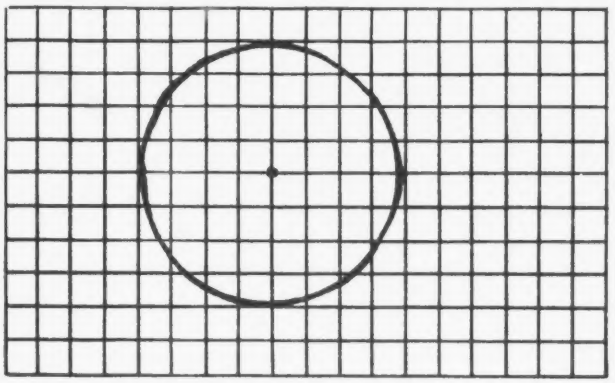
1. Construct a square whose sides measure $\frac{1}{2}$ the corresponding sides of ABCD.



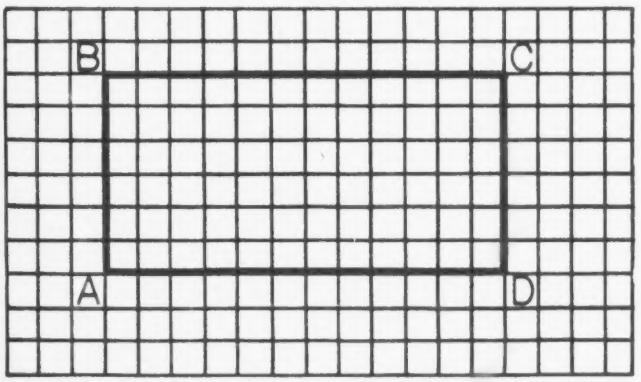


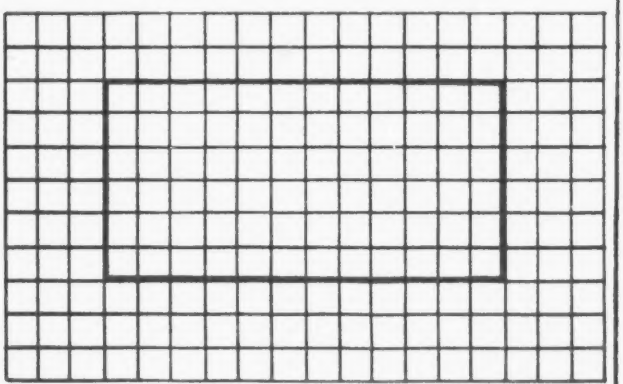
2. Construct a circle whose radius is twice that of circle O.





3. Construct a rectangle whose sides are congruent to ABCD.



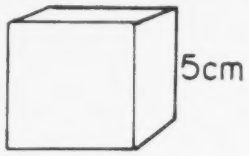


SHARPENING YOUR SKILLS

Units 58, 59, 60

Name: _____ **Class:** _____ **Date:** _____

1. Find the volume of the cube below.



125 cm^3

2. A box is 20 cm long, 5 cm wide, and 35 cm high. What is the volume of the box?

(a) 60 cm^3 ● 3500 cm^3

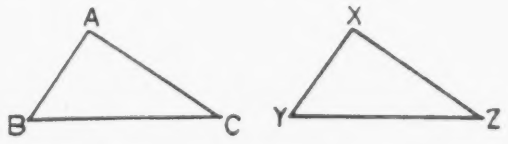
(b) 135 cm^3 (d) Not Here

3. On a separate piece of paper, draw triangle XYZ so that:

XY = 6 cm
∠XYZ contains 90°
YZ = 8 cm

When the triangle is complete, side XZ measures 10 cm and ∠XZY contains 37° degrees.

4. Triangles ABC and XYZ below are congruent.

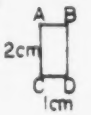


Which statement below is true about triangles ABC and XYZ?

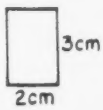
● $\overline{AB} = \overline{XY}$ (g) $\overline{BC} = \overline{XZ}$

(f) $\overline{AB} = \overline{XZ}$ (h) $\overline{AC} = \overline{YZ}$

5. Which figure below is similar to figure ABCD?



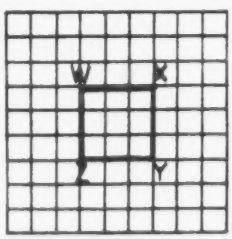
(a)

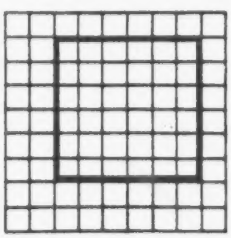
(c) 

(b)

● Not Here

6. On the blank grid below, construct a figure similar to figure WXYZ.





7. What is the volume of a cylinder that has a capacity of 25 mL?

(e) 50 mL ● 25 cm^3

(f) 625 cm (h) Not Here

P.O. 6.14.14.01

NAME: _____ CLASS: _____ DATE: _____

I. On a very cold January day the temperatures were recorded at the start of the football games. Use the information below to record the temperature on the chart at the end of the game.

a. In New York, the temperature was six degrees colder.

b. In Cincinnati, the temperature was five degrees warmer.

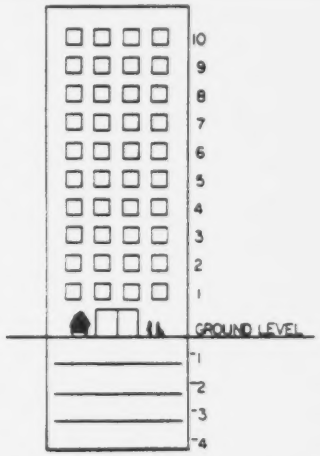
c. In Chicago, the temperature was eight degrees colder.

d. In Greenbay, the temperature was two degrees colder.

e. In Pittsburgh, the temperature was three degrees warmer.

TEAM	STADIUM	TEMPERATURE AT START OF GAME	TEMPERATURE AT END OF GAME
New York Giants	Giants Stadium	$^{-}4°C$	$-10°C$
Cincinnati Bengals	Riverfront Stadium	$^{-}2°C$	$+3°C$
Chicago Bears	Soldier Field	$^{+}4°C$	$-4°C$
Greenbay Packers	Lambeau Field	$^{-}3°C$	$-5°C$
Pittsburgh Steelers	Three Rivers Stadium	$^{+}6°C$	$+9°C$

II. The AJAX Building has ten floors above ground level and four sub-basements. Mr. Lee, the custodial engineer, works throughout the building each day. Use the picture of the building to answer the following questions.



a) When Mr. Lee arrives each day at 6:00 A.M., he rides the elevator down three floors from ground level to his office. Where is his office located in the building? -3

b) At 7:00 A.M. each day, he rides up five floors from his office to the mail room. On which floor is the mail room located? +2

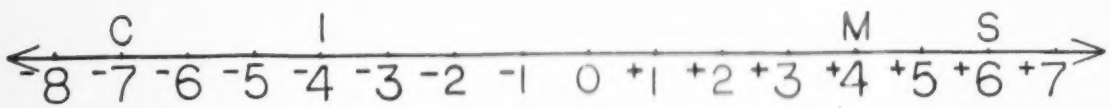
c) How many floors is it from the mail room to the lowest floor? 6

d) At 8:00 A.M., he rides the elevator from the lowest basement floor to the cafeteria on the tenth floor. How many floors is it from the lowest sub-basement to the cafeteria? 14

P.O. 6.14.14.02

NAME: _____ CLASS: _____ DATE: _____

I. Complete the number line and the statements below.



a. Name the integer that is represented by each of the letters on the number line above.

C	I	M	S
-7	-4	+4	+6

b. As you move in a positive direction on the number line, the numbers become greater.

c. As you move in a negative direction on the number line, the numbers become smaller.

d. Any number on the number line is smaller than any number to its right.

e. Any number on the number line is greater than any number to its left.

II. Use the correct symbol, > or <, to complete each example.

a) $+5 < +8$ d) $-3 < +2$ g) $-5 < 0$

b) $-2 > -7$ e) $0 > -2$ h) $+3 > 0$

c) $+4 > -5$ f) $+3 > -1$ i) $-5 < -4$

Do you remember?

Solve each of the following:

1. $4\frac{3}{5} + 5\frac{1}{3} = 9\frac{14}{15}$

2. $7\frac{1}{2} + 3\frac{5}{9} = 11\frac{1}{18}$

3. $9\frac{5}{6} - 4\frac{3}{8} = 5\frac{11}{24}$

4. $8\frac{1}{4} - 5\frac{1}{2} = 2\frac{3}{4}$

P.O. 6.08.01.01-.03

NAME: _____ CLASS: _____ DATE: _____

I. Order each set of integers from least to greatest.

A. $\{+4, -5, +8, -7, +2\}$

$\{-7, -5, +2, +4, +8\}$

B. $\{-6, 0, +2, -8, +8\}$

$\{-8, -6, 0, +2, +8\}$

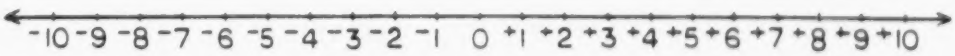
C. $\{+9, -8, -3, 0, +5\}$

$\{-8, -3, 0, +5, +9\}$

D. $\{0, +3, +7, -7, -6\}$

$\{-7, -6, 0, +3, +7\}$

II. Use the number line to add each pair of integers.



a. $+5 + +2 = +7$

b. $-3 + -5 = -8$

c. $-3 + -4 = -7$

d. $+5 + +3 = +8$

e. $+3 + -5 = -2$

f. $0 + +6 = +6$

g. $-6 + +8 = +2$

h. $0 + -9 = -9$

III. Complete the sentence and solve each example.

a. The sum of an integer and its opposite is always 0.

b. $+4 + -4 = \boxed{0}$

c. $-6 + \boxed{+6} = 0$

d. $-12 + +12 = \boxed{0}$

e. $\boxed{+18} + -18 = 0$

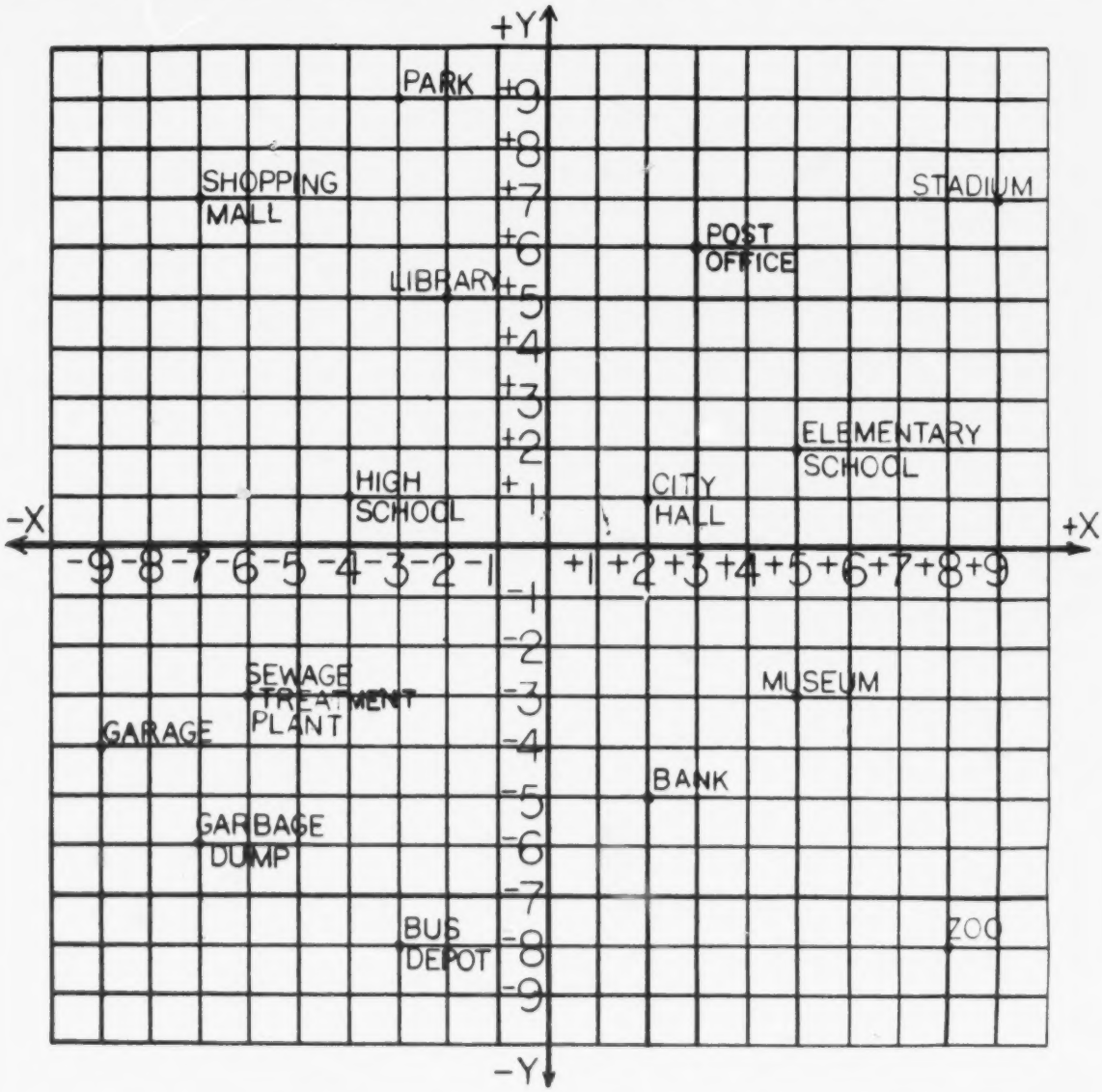
f. $\boxed{-20} + +20 = 0$

g. $+50 + -50 = \boxed{0}$

P.O. 6.14.15.01

NAME: _____ CLASS: _____ DATE: _____

Name the coordinates of each place (point) on the grid.

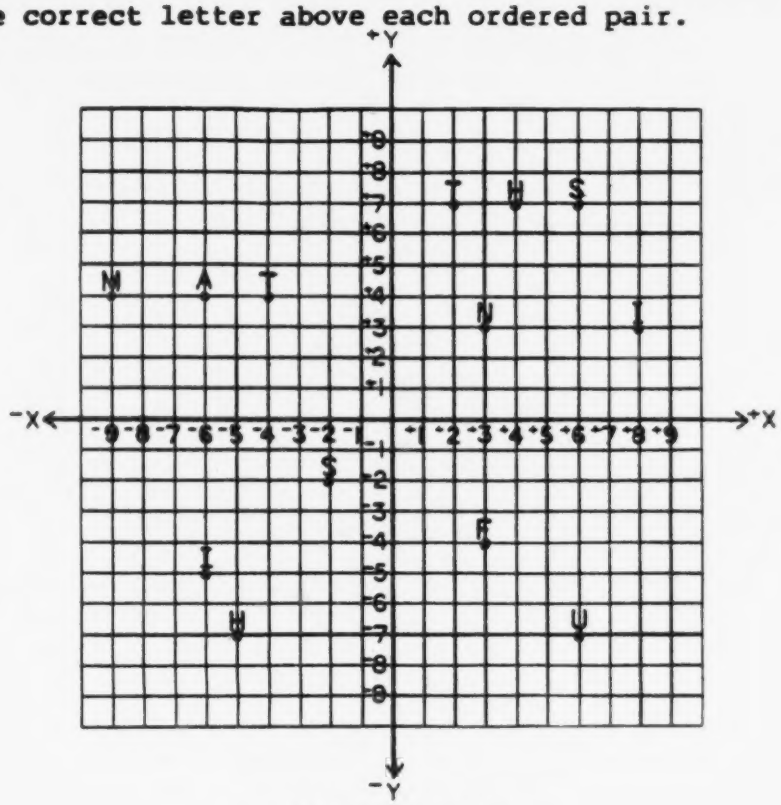


Post Office	(+3,+6)	High School	(-4,+1)	Bus Depot	(-3,-8)
Bank	(+2,-5)	City Hall	(+2,+1)	Library	(-2,+5)
Sewage Treatment Plant	(-6,-3)	Museum	(+5,-3)	Elementary School	(+5,+2)
Shopping Mall	(-7,+7)	Garbage Dump	(-7,-6)	Zoo	(+8,-8)
Stadium	(+9,+7)	Park	(-3,+9)	Garage	(-9,-4)

P.O. 6.14.15.02

Name _____ Class _____ Date _____

Plot each ordered pair on the four-quadrant grid. Then solve the puzzle by placing the correct letter above each ordered pair.



ORDERED PAIRS

$(^{-}4,^{+}4)$	$(^{-}6,^{-}5)$	$(^{-}5,^{-}7)$
$(^{+}4,^{+}7)$	$(^{+}3,^{-}4)$	$(^{-}2,^{-}2)$
$(^{+}6,^{-}7)$	$(^{+}3,^{+}3)$	$(^{-}6,^{+}4)$
$(^{+}8,^{+}3)$	$(^{-}9,^{+}4)$	$(^{+}2,^{+}7)$
$(^{+}6,^{+}7)$		

PUZZLE

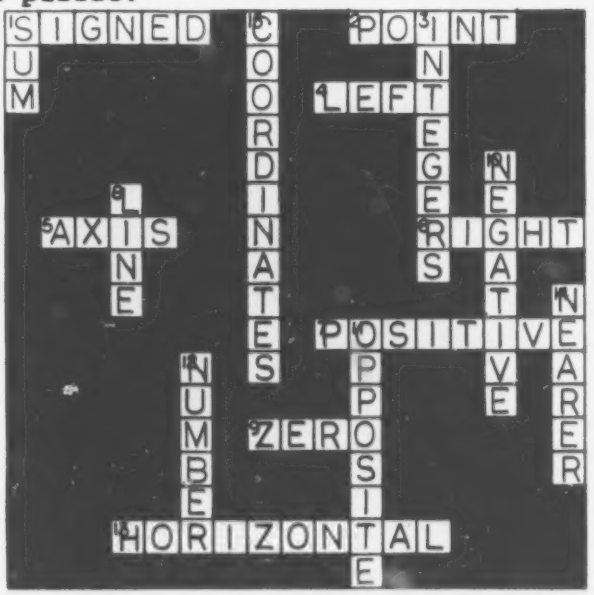
T $(^{-}4,^{+}4)$	H $(^{+}4,^{+}7)$	I $(^{-}6,^{-}5)$	S $(^{+}6,^{+}7)$	
M $(^{-}9,^{+}4)$	A $(^{-}6,^{+}4)$	T $(^{+}2,^{+}7)$	H $(^{-}5,^{-}7)$	
I $(^{+}8,^{+}3)$	S $(^{-}2,^{-}2)$	F $(^{+}3,^{-}4)$	U $(^{+}6,^{-}7)$	N $(^{+}3,^{+}3)$

P.O. 6.14.15.01-.02

NAME: _____ CLASS: _____ DATE: _____

CHALLENGE!

Solve the crossword puzzle.



ACROSS

1. Positive and negative numbers are also called _____ numbers.
2. An exact location on a grid determined by an ordered pair is called a _____.
4. Move to the _____ in a negative direction on the X axis.
5. The horizontal number line on a four-quadrant grid is the X-_____.
6. Move to the _____ in a positive direction on the horizontal axis.
7. Read this integer, $^{+}5$, as _____ five.
9. Positive integers and _____ are always greater than any negative integer.
13. We move along the _____ line to find the first coordinate in an ordered pair.

DOWN

1. The _____ of any number and its opposite equals zero.
3. The set of _____ is made up of the set of whole numbers and their opposites.
8. The vertical number _____ is the Y-axis.
10. $^{-}8$ is read _____ eight.
11. $^{-}5$ and $^{+}5$ are _____ integers the sum of which is zero.
12. The second _____ in an ordered pair gives the vertical location.
14. Given two negative integers, the one _____ to zero is the greater.
15. An ordered pair may also be called the _____ of a given point.

SHARPENING YOUR SKILLS

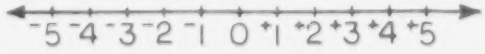
Units 61, 62, 63

Name: _____ **Class:** _____ **Date:** _____

1. One afternoon the temperature was 5°C. By evening, the temperature had dropped 12°. What was the temperature then?

   (a) $^-17$°C ● $^-7$°C
   (b) 7°C (d) 17°C

Use the number line below for examples 2-7. Fill in > or < in each circle.



2. $^-5$ (<) 0
3. $^+2$ (>) $^-4$
4. $^-3$ (<) $^+3$
5. $^+4$ (<) $^+6$
6. $^-3$ (<) $^-1$
7. 0 (>) $^-2$

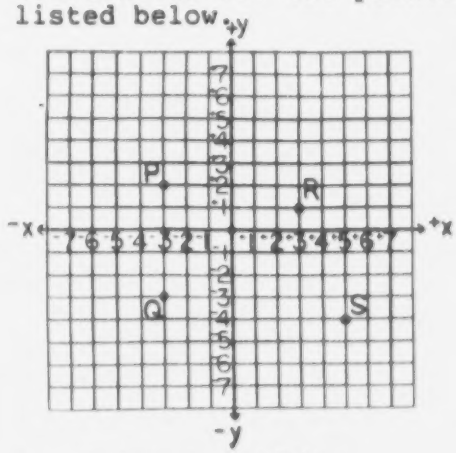
8. $\{^-3, ^+2, 0, ^-5\}$

   The set of integers above ordered from least to greatest is _____.

   (a) $\{^-3, ^-5, 0, ^+2\}$
   (b) $\{0, ^+2, ^-3, ^-5\}$
   ● $\{^-5, ^-3, 0, ^+2\}$
   (d) $\{^-5, ^-3, ^+2, 0\}$

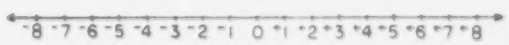
9. The sum of any number and its opposite is always ZERO.

10. Use the grid to find the coordinates for the points listed below.



   a. Point P = $(^-3, ^+2)$
   b. Point Q = $(^-3, ^-3)$
   c. Point R = $(^+3, ^+1)$
   d. Point S = $(^+5, ^-4)$

Use the number line below to solve examples 11-16.



11. $^+7 + ^-5 =$ $^+2$
12. $^+2 + ^+6 =$ $^+8$
13. $^-3 + ^-1 =$ $^-4$
14. $^+5 + ^-5 =$ 0
15. $^-4 + ^-2 =$ $^-6$
16. $^-2 + ^+8 =$ $^+6$

P.O. 6.06.07.01&.03-.04

NAME: _____ CLASS: _____ DATE: _____

Answer the questions below.

Planet Zick and Planet Zork

On Planet Zork, everything weighs $1\frac{2}{3}$ times as much as on Planet Zick.

1a. If you weigh $5\frac{1}{2}$ zows on Zick, estimate how much you would weigh on Zork. about 12 zows

b. What would you actually weigh on Zork if you weighed $5\frac{1}{2}$ zows on Zick? $9\frac{1}{6}$ zows

2a. Julia took a trip to Zick and weighed $3\frac{1}{8}$ zows. Approximately how many zows would she weigh on Zork? about 6 zows

b. What would be her exact weight on Zork? $5\frac{5}{24}$ zows

Planet Earth

On the moon, things weigh much less than they do on earth. A rock weighing one pound on the moon will weigh about $5\frac{9}{10}$ times more on Earth.

3a. If a moonrock weighs $2\frac{1}{3}$ lb on the moon, estimate about how much it would weigh on Earth. about 12 lb

b. What would this moon rock actually weigh on Earth? $13\frac{23}{30}$ lb

4a. Julia is the first 6th grade astronaut to reach the moon. Before returning to Earth, she weighed herself and the scale recorded $7\frac{3}{5}$ kg. What is her estimated weight on Earth? about 48 kg

b. What is her exact weight on Earth? $44\frac{21}{25}$ kg

CHALLENGE!

Find the product of each of the following. Remember to simplify.

(1) $4 \times 3\frac{1}{2} \times 2\frac{1}{3} = 32\frac{2}{3}$ (3) $1\frac{2}{7} \times 2\frac{3}{4} \times 3 = 10\frac{17}{28}$

(2) $7\frac{1}{2} \times 3\frac{1}{2} \times 1\frac{4}{5} = 47\frac{1}{4}$ (4) $\frac{1}{4} \times 3 \times 1\frac{1}{10} \times 2\frac{1}{2} = 2\frac{1}{16}$

P.O. 6.06.07.02-.04

NAME: _____ CLASS: _____ DATE: _____

Use the recipe to answer the questions below.

Recipe for Blueberry Muffins (makes 12)

$\frac{1}{2}$ tsp yeast	1 tsp salt	$3\frac{1}{2}$ c flour
$1\frac{1}{8}$ c water	$2\frac{1}{4}$ tbsp oil	$1\frac{1}{2}$ c blueberries
$1\frac{2}{3}$ tbsp butter	$1\frac{3}{4}$ c milk	1 egg
	$2\frac{1}{3}$ c sugar	

I. For questions 1 to 3, use the distributive property to solve each problem.

1. If we double the recipe for making blueberry muffins,
   a. how much flour will be needed? 7 cups
   b. how much butter will be used? $3\frac{1}{3}$ tbsp

2. If we triple the recipe,
   a. how many tablespoons of oil will be used? $6\frac{3}{4}$ tbsp
   b. how many cups of blueberries will be needed? $4\frac{1}{2}$ cups

3. If twice as much milk is used than the recipe calls for, how many cups of milk is this? $3\frac{1}{2}$ cups

II. Solve each of the following problems.

4. Nina is making more than twelve muffins. She will use $1\frac{1}{2}$ times the recipe. How many cups of sugar will she use? $3\frac{1}{2}$ cups

5. How many muffins can be made if the recipe is multiplied by $2\frac{1}{2}$?
   30 muffins

6. How much water is needed if:
   a. the recipe is doubled? $2\frac{1}{4}$ cups
   b. the recipe is three and one half times larger? $3\frac{15}{16}$ cups

Do you remember?

(a) $5\frac{1}{4} + 2\frac{3}{8} = \boxed{7\frac{5}{8}}$ (b) $7\frac{3}{4} - 1\frac{1}{16} = \boxed{6\frac{11}{16}}$ (c) $14 - 5\frac{3}{5} = \boxed{8\frac{2}{5}}$

P.O. 6.06.08.01

NAME: _____ CLASS: _____ DATE: _____

The driver of the automobile will not know the name of the bridge he is crossing until he gets to the other side. Solve each division problem and match your answer with the answers below. If they match, write the letter for each answer on the blank line.

B	R	O	O	K	L	Y	N
$11\frac{1}{5}$	$7\frac{1}{3}$	$23\frac{1}{5}$	$3\frac{1}{2}$	$12\frac{2}{3}$	68	14	$1\frac{13}{14}$

$2\frac{4}{9} + \frac{1}{3} =$ [R] $\quad 1\frac{3}{4} + \frac{1}{2} =$ [O] $\quad 5\frac{3}{5} + \frac{1}{2} =$ [B]

$3\frac{1}{6} + \frac{1}{4} =$ [K] $\quad 9\frac{1}{3} + \frac{2}{3} =$ [Y] $\quad 5\frac{4}{5} + \frac{1}{4} =$ [O]

$8\frac{1}{2} + \frac{1}{8} =$ [L] $\quad 1\frac{2}{7} \div \frac{2}{3} =$ [N]

CHALLENGE!

Mrs. Daisy, the manager of Moo Milk Company, discovered a crack at the bottom of a $3\frac{2}{3}$ quart cream container. If $\frac{1}{6}$ qt cream leaks out of the container every 30 seconds, in how many minutes will the container be empty?

11 minutes

P.O. 6.06.08.02-.03

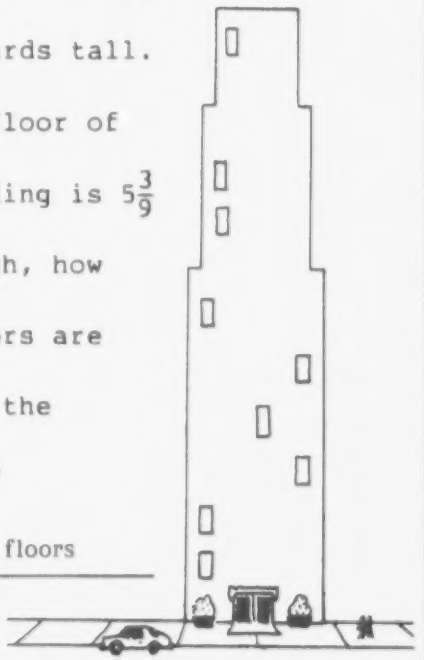
NAME: _____ CLASS: _____ DATE: _____

I. **Complete the examples in column A and express each answer in simplest form. Then match it up with the answer in column B.**

A		B
$7\frac{1}{2} + 2\frac{1}{2} =$	3	$3\frac{3}{8}$
$6\frac{2}{3} + 1\frac{1}{4} =$	$5\frac{1}{3}$	$2\frac{2}{9}$
$5\frac{3}{5} + 2\frac{1}{3} =$	$2\frac{2}{5}$	$2\frac{1}{14}$
$7\frac{1}{4} + 3\frac{1}{2} =$	$2\frac{1}{14}$	3
$8\frac{1}{3} + 3\frac{3}{4} =$	$2\frac{2}{9}$	$2\frac{2}{5}$
$4\frac{1}{2} + 1\frac{1}{3} =$	$3\frac{3}{8}$	$5\frac{1}{3}$

II. An office building is $42\frac{2}{3}$ yards tall. If each floor of the building is $5\frac{3}{9}$ yards high, how many floors are there in the building?

Answer: 8 floors



III. **Solve the following problem.**

The Scent Perfume Company has a large bottle which contains $10\frac{4}{5}$ ounces of their best perfume. Mr. Holdnose is pouring perfume from the large bottle into smaller $1\frac{1}{5}$ oz bottles, which he will sell as holiday gifts. How many smaller bottles can he fill from the large bottle?

9 smaller bottles

Do you remember?

Remember the order of operations. What are the solutions to these examples?

$4 \times 3 + 2 + 2 \times 7 =$ ☐

(a) 70 (b) 49 (c) 91

(d) 1 ● Not Here

$4 + 3 \times 2 - 2 \times 2 =$ ☐

● 6 (b) 10 (c) 24

(d) 16 (e) Not Here

P.O. 6.04.02.01-.02&.04

NAME: _____ CLASS: _____ DATE: _____

I. Darken the circle next to the correct answer.

1. 60,000 x3,000

(a) 63,000
(b) 180,000
● 180,000,000
(d) Not Given

2. 80,000 x4,000

● 320,000,000
(b) 32,000,000
(c) 3,200,000
(d) Not Given

II. Solve each example.

3. 7,000 x6,000 = 42,000,000

4. 9,000 x2,000 = 18,000,000

III. Round the factors in each example to the left-most place and estimate the products.

5. 29,875 x 8,962 → 30,000 x 9,000 = 270,000,000

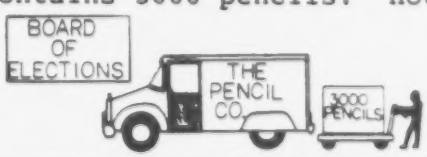
6. 71,874 x 4,993 → 70,000 x 5,000 = 350,000,000

7. 52,941 x 6,135 → 50,000 x 6,000 = 300,000,000

8. 92,061 x 5,892 → 90,000 x 6,000 = 540,000,000

IV. Solve each problem.

9. To prepare for the elections during the month of November, the Board of Elections bought 2000 cartons of pencils. Each carton contains 3000 pencils. How many pencils were bought in all?



6,000,000 pencils

10. The U.S. Government Postal Printing Center in Washington, D.C. sends stamps each week to post offices throughout the northeastern United States. Each of the 1987 post offices receives 27,750 stamps. Estimate the number of stamps sent out each week.

60,000,000 stamps

P.O. 6.04.02.02-.04

NAME: _____ CLASS: _____ DATE: _____

I. Estimate by rounding each factor to the left-most place. Then find the actual product.

	Actual	Estimate
1.	58,973 x 6,842 403,493,266	60,000 x 7,000 420,000,000
2.	19,872 x 3,798 75,473,856	20,000 x 4,000 80,000,000
3.	7015 x 6124 42,959,860	7 000 x 6 000 42,000,000
4.	29,135 x 4,688 136,584,880	30,000 x 5,000 150,000,000

II. Solve each problem.

5. A Maryland poultry processor delivers crates of chickens to the New York metropolitan area every day. Last year the trucks made 1825 trips carrying 2975 frozen chickens on each truck. First estimate and then find the actual number of chickens delivered.

Estimate: 6,000,000

Answer: 5,429,375 chickens

6. The Fizzy-Pop Bottling Company shipped 25,950 bottles of soft drink to each of 2027 beverage outlets last year. First estimate and then tell how many bottles were shipped in all.

Estimate: 60,000,000

Answer: 52,600,650 bottles

SHARPENING YOUR SKILLS

Units 64, 65, 66

Name: _____ **Class:** _____ **Date:** _____

Estimate the products for examples 1-3.

1. $4\frac{3}{7} \times 5\frac{1}{8} =$ ☐ Estimate = 20
2. $6\frac{4}{9} \times 3\frac{5}{8} =$ ☐ Estimate = 24
3. $7\frac{4}{5} \times 9\frac{2}{3} =$ ☐ Estimate = 80

4. $6\frac{1}{2} \times 2\frac{4}{5} =$ ☐

(a) $12\frac{2}{5}$ ● $18\frac{1}{5}$
(b) $8\frac{6}{7}$ (d) Not Here

5. $9\frac{2}{3} \times 2\frac{5}{8} =$ ☐

● $25\frac{3}{8}$ (c) $18\frac{5}{12}$
(b) $7\frac{5}{24}$ (d) Not Here

6. $4\frac{2}{3} + \frac{5}{6} =$ $5\frac{3}{5}$

7. $7\frac{3}{4} + \frac{1}{2} =$ $15\frac{1}{2}$

8. $6\frac{3}{5} + 3\frac{2}{3} =$ ☐

(a) $3\frac{1}{2}$ (c) $2\frac{1}{2}$
● $1\frac{4}{5}$ (d) Not Here

9. George plans to use a cookie recipe that requires $2\frac{1}{2}$ cups of flour. He wants to increase the recipe $3\frac{1}{2}$ times. How much flour will he have to use?

$8\frac{3}{4}$ cups

10. Solve the following:

80,000 x 20,000 = 1,600,000,000
30,000 x 9,000 = 270,000,000
50,000 x 50,000 = 2,500,000,000

11.
$$\begin{array}{r} 13{,}428 \\ \times\ 6{,}905 \\ \hline 92{,}720{,}340 \end{array}$$

12. Mr. Fox has a piece of wood $7\frac{1}{2}$ yards long. He wants to cut it into pieces that are 18 inches long. How many pieces will he be able to cut?

15 pieces

13. The Play-Along Manufacturing Company shipped 1200 cassette tapes to each of 1576 wholesale distributors. How many tapes were shipped in all?

1,891,200 tapes

P.O. 6.14.16.01-.02

Name _____ Class _____ Date _____

Follow the directions below.

I. Find the value of each numeral below.

a. 2^5 = 2 x 2 x 2 x 2 x 2 = 32

b. 3^4 = 3x3x3x3 = 81

c. 4^1 = 4 = 4

d. 9^0 = 1 = 1

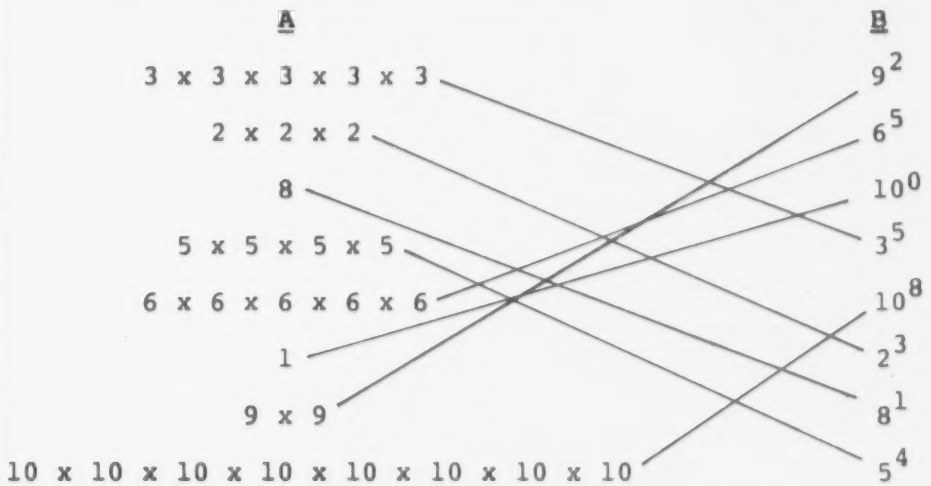
e. 5^5 = 5x5x5x5x5 = 3125

f. 1^5 = 1x1x1x1x1 = 1

g. 7^2 = 7x7 = 49

h. 10^3 = 10 x 10 x 10 = 1000

II. Match each expression in column A with its equivalent in exponential terms in column B.



CHALLENGE!

Find the sum of 6^2 and 2^6.

Express the sum in exponential form.

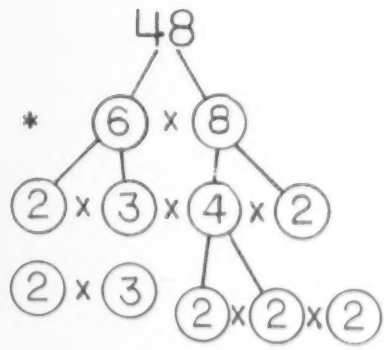
10^2

P.O. 6.01.07.01-.02

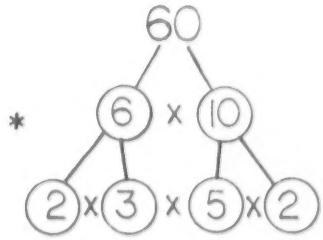
NAME: _____ CLASS: _____ DATE: _____

I. Use a factor tree to express each number below as a product of primes.

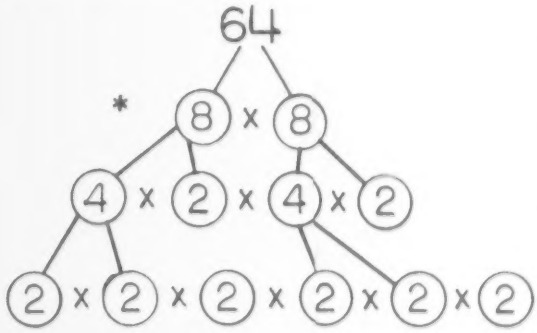
1.



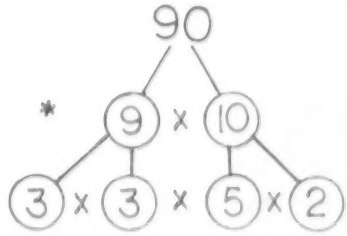
2.



3.

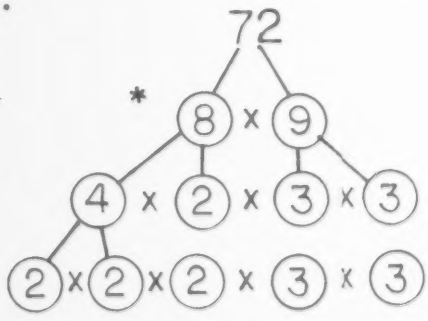


4.



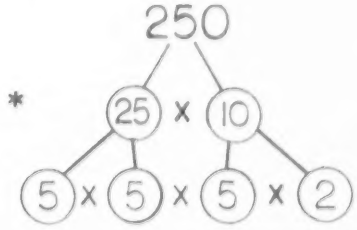
II. Use a factor tree to express each number below as a product of powers of primes.

5.



$2^3 \times 3^2$

6.



2×5^3

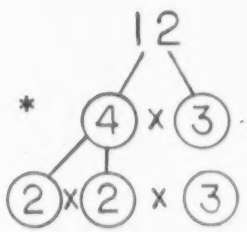
* Initial factor pairs may vary.

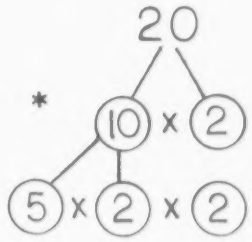
P.O. 6.01.07.03

NAME: _____ CLASS: _____ DATE: _____

I. Find the prime factors of each number below. Then find the greatest common factor for each pair of numbers.

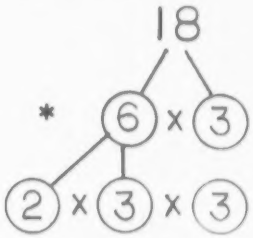
a.

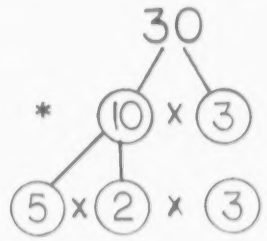




The GCF of 12 and 20 is 4.

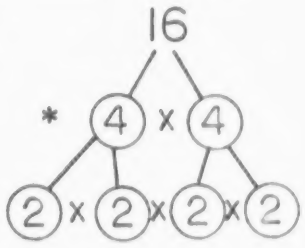
b.

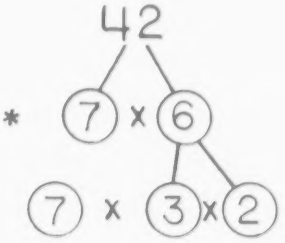




The GCF of 18 and 30 is 6.

c.





The GCF of 16 and 42 is 2.

* Initial factor pairs may vary.

P.O. 6.01.08.01-.02

NAME: _____ CLASS: _____ DATE: _____

I. On the line next to each numerical expression, put a ✓ if it is written in scientific notation and an X if it is not.

3.42×10^2 ✓	2.5×5^{10} X	1.3×10^4 ✓
0.678×10^5 X	49.3×10^{11} X	25×10^2 X

II. Write the standard form of each expression below.

$4.7 \times 10^3 =$ 4700	$2.13 \times 10^1 =$ 21.3
$2.683 \times 10^6 =$ 2,683,000	$6.07 \times 10^0 =$ 6.07
$9.7012 \times 10^4 =$ 97,012	$1.116 \times 10^{11} =$ 111,600,000,000
$8.003 \times 10^3 =$ 8003	$3.74 \times 10^2 =$ 374
$6.7503 \times 10^2 =$ 675.03	$5.5 \times 10^6 =$ 5,500,000
$7.6849 \times 10^2 =$ 768.49	$8.01 \times 10^1 =$ 80.1

III. Fill in the missing digits.

$3.784 \times 10^4 = 3\,7\,8\,4\,0$

$2.0659 \times 10^5 = 2\,0\,6\,5\,9\,0$

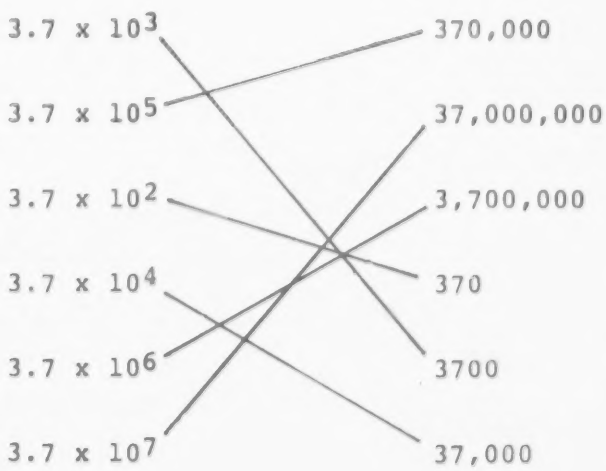
$6.93 \times 10^7 = 6\,9\,3\,0\,0\,0\,0\,0$

$8.5705 \times 10^3 = 8\,5\,7\,0.5$

$4.601 \times 10^5 = 4\,6\,0,1\,0\,0$

$2.13 \times 10^2 = 2\,1\,3$

IV. Draw a line to match each number to its equivalent.



P.O. 6.01.08.02-.03

NAME: _____ CLASS: _____ DATE: _____

I. Write each numeral in scientific notation.

a. 87,000,000 = 8.7×10^7

b. 24,200 = 2.42×10^4

c. 1,570,000 = 1.57×10^6

d. 4,386 = 4.386×10^3

e. 81,010 = 8.101×10^4

f. 21,000 = 2.1×10^4

g. 1700 = 1.7×10^3

h. 153,400 = 1.534×10^5

i. 6789 = 6.789×10^3

j. 453 = 4.53×10^2

k. 21,300 = 2.13×10^4

l. 647,000,000,000 = 6.47×10^{11}

II. Solve the puzzle by finding the equivalent and writing the letter on the line.

4.26×10^5 = [F]

625,000 = [A]

6.25×10^4 = [T]

426 = [H]

426,000,000 = [S]

625,000,000,000 = [W]

T	H	A	T
62,500	4.26×10^2	6.25×10^5	62,500

W	A	S
6.25×10^{11}	6.25×10^5	4.26×10^8

F	A	S	T
426,000	6.25×10^5	4.26×10^8	62,500

P.O. 6.01.09.01-.02

NAME: _____ CLASS: _____ DATE: _____

I. Write the Arabic equivalent of each Roman numeral below.

a. CXVI = 116	f. MCDLIX = 1459	k. CLVI = 156
b. LXXXVII = 87	g. CCXCV = 295	l. DCX = 610
c. MCLI = 1151	h. MCDXCII = 1492	m. XXXIX = 39
d. MCLIV = 1154	i. CXCIV = 194	n. MCMLXXXIX = 1989
e. CCXIX = 219	j. XXVII = 27	o. MCL = 1150

II. Explain how the bar over the symbol(s) in a Roman numeral affects its value.

The symbol(s) directly below the bar are multiplied by one thousand.

III. In each of the following give the value of the symbol(s) directly below the bar.

a. $\overline{X}$ = 10,000	g. $\overline{XV}$ = 15,000	l. $\overline{IX}$ = 9000
b. $\overline{C}$ = 100,000	h. $\overline{CX}$ = 110,000	m. $\overline{IV}$ = 4000
c. $\overline{XX}$ = 20,000	i. $\overline{DC}$ = 600,000	n. $\overline{XXV}$ = 25,000
d. $\overline{M}$ = 1,000,000	j. $\overline{VII}$ = 7000	o. $\overline{XIX}$ = 19,000
e. $\overline{L}$ = 50,000	k. $\overline{MD}$ = 1,500,000	p. $\overline{CD}$ = 400,000

P.O. 6.01.09.03-.04

NAME: _____ CLASS: _____ DATE: _____

I. Rename each Roman numeral as its Arabic equivalent.

a. $\overline{\text{LX}}$II = 60,002

b. $\overline{\text{C}}$XV = 100,015

c. MCCLX = 1260

d. CLIX = 159

e. $\overline{\text{X}}$IX = 10,009

f. $\overline{\text{D}}$CCXXIV = 500,224

g. MMXCIV = 2094

h. $\overline{\text{L}}$XVIII = 50,018

i. MDCLXVI = 1666

j. $\overline{\text{CL}}$VI = 150,006

II. Rename the Arabic numerals as their Roman numeral equivalents.

a. 5000 = $\overline{\text{V}}$

b. 10,000 = $\overline{\text{X}}$

c. 1989 = MCMLXXXIX

d. 1776 = MDCCLXXVI

e. 1492 = MCDXCII

f. 1938 = MCMXXXVIII

g. 2000 = MM

h. 15,316 = $\overline{\text{XV}}$CCCXVI

i. 100,556 = $\overline{\text{C}}$DLVI

j. 1666 = MDCLXVI

III. Rename the missing Roman numeral or Arabic numeral.

a. DCX = 610

b. XXXVIII = 38

c. $\overline{\text{M}}$CCL = 1,000,250

d. CD = 400

e. $\overline{\text{L}}$XVI = 50,016

f. $\overline{\text{V}}$ = 5000

g. MMDLXXII = 2572

h. MCMLXXII = 1972

i. $\overline{\text{XV}}$CCXVI = 15,216

j. MCMLXVIII = 1968

SHARPENING YOUR SKILLS

Units 67, 68, 69, 70

Name: _____ **Class:** _____ **Date:** _____

1. 3^4 = _____ in exponential form.

(a) 12 (c) 34
● 81 (d) Not Here

2. 56 expressed as a product of primes = _____.

(e) 7 x 8 ● 2 x 2 x 2 x 7
(f) 2 x 4 x 7 (h) Not Here

3. 96 expressed as a product of powers of primes = _____.

● $2^5 \times 3$ (c) $2^3 \times 3 \times 4$
(b) $2 \times 3 \times 4^2$ (d) Not Here

4. Which number is not expressed in scientific notation?

(e) 4.96×10^3 ● 38.69×10^4
(f) 5.19×10^6 (h) 6.0235×10^5

5. 3.68×10^5 = _____

● 368,000 (c) 3685
(b) 36,800,000 (d) Not Here

6. 83,400,000 = _____

(e) 8.34×10^4 (g) 83.4×10^6
● 8.34×10^7 (h) Not Here

7. DCCLIX = _____

● 759 (c) 741
(b) 579 (d) Not Here

8. MMCMLXXXIX = _____

(e) 3089 ● 2989
(f) 1989 (h) Not Here

9. $\overline{C}$XV = _____

(a) 115 (c) 1015
(b) 1005 ● Not Here

10. $\overline{CD}$LXXX = _____

● 400,080 (g) 480,000
(f) 4080 (h) Not Here

11. 1989 = _____

● MCMLXXXIX (c) MCDLXXX
(b) MCMLXXIX (d) Not Here

12. 4500 = _____

(e) $\overline{IV}$C ● $\overline{IV}$D
(f) $\overline{CDL}$ (h) Not Here

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